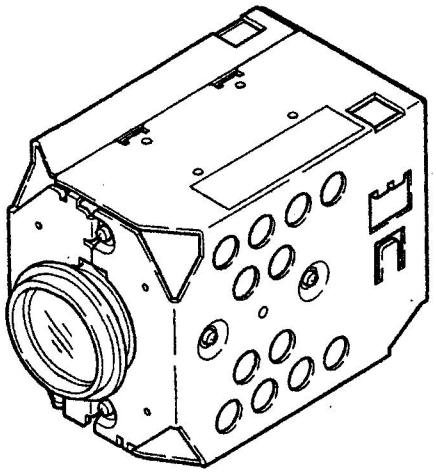
HITACHI

SERVICE MANUAL

TK	No. 8610E

VK-S714/S714E
VK-K704/K704E



SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

COLOR & B/W VIDEO CAMERA

November 1996 Image & Information Media Systems Division, Tokai

How to discriminate the "TYPE" identifications in the service manual

The parts and circuit are identified by "TYPE" in this manual to discriminate the differences between models. The table below shows how to read the TYPE indentications.

TYPE identification		Model Name
S714	→	VK-S714
S714E	→	VK-S714E
K704	→	VK-K704
K704E	→	VK-K704E
K714	→	Not used
K714E	→	Not used

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts have special safety-related characteristics. These are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for a higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual. Electrical components having such features are identified by marking with a ⚠ on the schematics and the parts list in this Service Manual. The use of a substitute replacement component which does not have the same safety characteristics as the HITACHI recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards. Product safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current HITACHI Service Manual. A subscription to, or additional copies for, HITACHI Service Manual may be obtained at a nominal charge from HITACHI SALES CORPORATION.

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CHAPTER 1 GENERAL INFORMATION

SPECIFICATIONS

Note: The specifications are subject to change for improvement without notice.

■For VK-S714

Signal	: NTSC format
Image Sensor	: Color 1/4" CCD image sensor
Number of Effective Pixels	: 768(H) X 494(V)
Total Number of Pixels	: 811(H) X 508(V)
Scanning System	: 2:1 interlaced
Scanning Frequency	: Horizontal 15.734kHz / Vertical 59.94Hz
Sync Format	: Internal/External
Video Signal Output	: COMPOSITE signal 1.0Vp-p Video approx. 0.7Vp-p positive Sync approx. 0.3Vp-p negative Burst approx. 0.3Vp-p
S/N ratio	: 46 dB or more
Horizontal resolution	: 450 TV lines or more
Minimum Required Illumination	: 10 lux
Permissible Operating Temperature	: 0℃ ~ 40℃
Permissible Operating Humidity	: 10 ~ 85%
Power Input	: DC 9V
Power Consumption	: 2.5W (MAX)
Dimensions	: 50(W) × 60(H) ×85(D) mm
Weight	: Approx. 220g

■For VK-S714E

Signal	: PAL format
Image Sensor	: Color 1/4" CCD image sensor
Number of Effective Pixels	: 752(H) X 582(V)
Total Number of Pixels	: 795(H) X 596(V)
Scanning System	: 2:1 interlaced
Scanning Frequency	: Horizontal 15.625kHz / Vertical 50Hz
Sync Format	: Internal/External
Video Signal Output	: COMPOSITE signal 1.0Vp-p Video approx. 0.7Vp-p positive Sync approx. 0.3Vp-p negative Burst approx. 0.3Vp-p
S/N ratio	: 46 dB or more
Horizontal resolution	: 450 TV lines or more
Minimum Required Illumination	: 10 lux
Permissible Operating Temperature	: 0℃ ~ 40℃
Permissible Operating Humidity	: 10 ~ 85%
Power Input	: DC 9V
Power Consumption	: 2.5W (MAX)
Dimensions	: 50(W) × 60(H) ×85(D) mm
Weight	: Approx. 220g

■For VK-K704

Signal	: EIA format
Image Sensor	: B/W 1/4" CCD image sensor
Number of Effective Pixels	: 510(H) X 492(V)
Total Number of Pixels	: 537(H) X 505(V)
Scanning System	: 2:1 interlaced
Scanning Frequency	: Horizontal 15.734kHz / Vertical 59.94Hz
Sync Format	: Internal/External
Video Signal Output	: COMPOSITE signal 1.0Vp-p Video approx. 0.7Vp-p positive Sync approx. 0.3Vp-p negative
S/N ratio	: 46 dB or more
Horizontal resolution	: 380 TV lines or more
Minimum Required Illumination	: 1.0 lux
Permissible Operating Temperature	: 0℃ ～ 40℃
Permissible Operating Humidity	: 10 ～ 85%
Power Input	: DC 9V
Power Consumption	: 2.5W (MAX)
Dimensions	: 50(W) × 60(H) ×85(D) mm
Weight	: Approx. 220g

■For VK-K704E

Signal	: CCIR format
Image Sensor	: B/W 1/4" CCD image sensor
Number of Effective Pixels	: 500(H) X 582(V)
Total Number of Pixels	: 537(H) X 597(V)
Scanning System	: 2:1 interlaced
Scanning Frequency	: Horizontal 15.625kHz / Vertical 50Hz
Sync Format	: Internal/External
Video Signal Output	: COPOSITE signal 1.0Vp-p Video approx. 0.7Vp-p positive Sync approx. 0.3Vp-p negative
S/N ratio	: 46 dB or more
Horizontal resolution	: 380 TV lines or more
Minimum Required Illumination	: 1.0 lux
Permissible Operating Temperature	: 0℃ ～ 40℃
Permissible Operating Humidity	: 10 ～ 85%
Power Input	: DC 9V
Power Consumption	: 2.5W (MAX)
Dimensions	: 50(W) × 60(H) ×85(D) mm
Weight	: Approx. 220g

CHAPTER 2 DISASSEMBLY

1. DISASSEMBLY PROCEDURE

● The numbers in the following tables correspond to those in "2. DISASSEMBLY PROCEDURE DIAGRAM". Remove each component shown in the following tables according to the order of the numbers.

Table 2-1

Item	CASE-R	CASE-L	CSR BOARD	PC BOARD	SP BOARD	SENSOR ASS'Y	LENS BLOCK	How to remove
Removal Procedure and Number of Component to be removed	① ↓ ②	① ↓ ② ↓ ③	① ↓ ② ↓ ③ ↓ ⑧	① ↓ ② ↓ ③ ↓ ⑥ ↓ ⑦ ↓ ⑧ ↓ ⑨	① ↓ ② ↓ ③ ↓ ⑥ ↓ ⑨ ↓ ⑩ ↓ ⑪ ↓ ⑫	① ↓ ② ↓ ③ ↓ ⑥ ↓ ⑨ ↓ ⑩ ↓ ⑪ ↓ ⑫	① ↓ ② ↓ ③ ↓ ④ ↓ ⑤ ↓ ⑥ ↓ ⑦ ↓ ⑨ ↓ ⑩	*① Remove two screws.* *② Remove two screws.* *③ Remove two screws.* *④ Remove two screws.* *⑤ Remove one screw.* *⑥ Remove one screw.* *⑦ Disconnect the flat cable. (※1)* *⑧ Disconnect one direct connector which connects the CSR and PC boards.* *⑨ Disconnect one direct connector which connects the SP and PC boards.* *⑩ Remove two screws.* *⑪ Remove two screws.* *⑫ Unsolder 14 points. (※2)*

CAUTION

※1 : Do not pull out the flat cable or touch the exposed terminal at the connecting position with your bare hands as it could cause a defective contact. Disconnect the flat cable in the order ① and ② shown in Fig. 2-1.

※2 : When the SP board is removed, the crystal filter (or dummy grass) and rubber are also removed. Be careful not to damage and lose them.

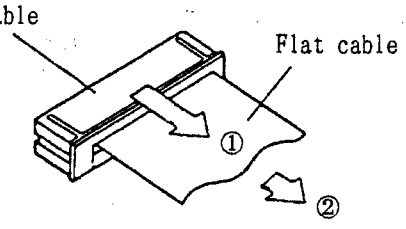


Fig. 2-1

2. DISASSEMBLY PROCEDURE DIAGRAM

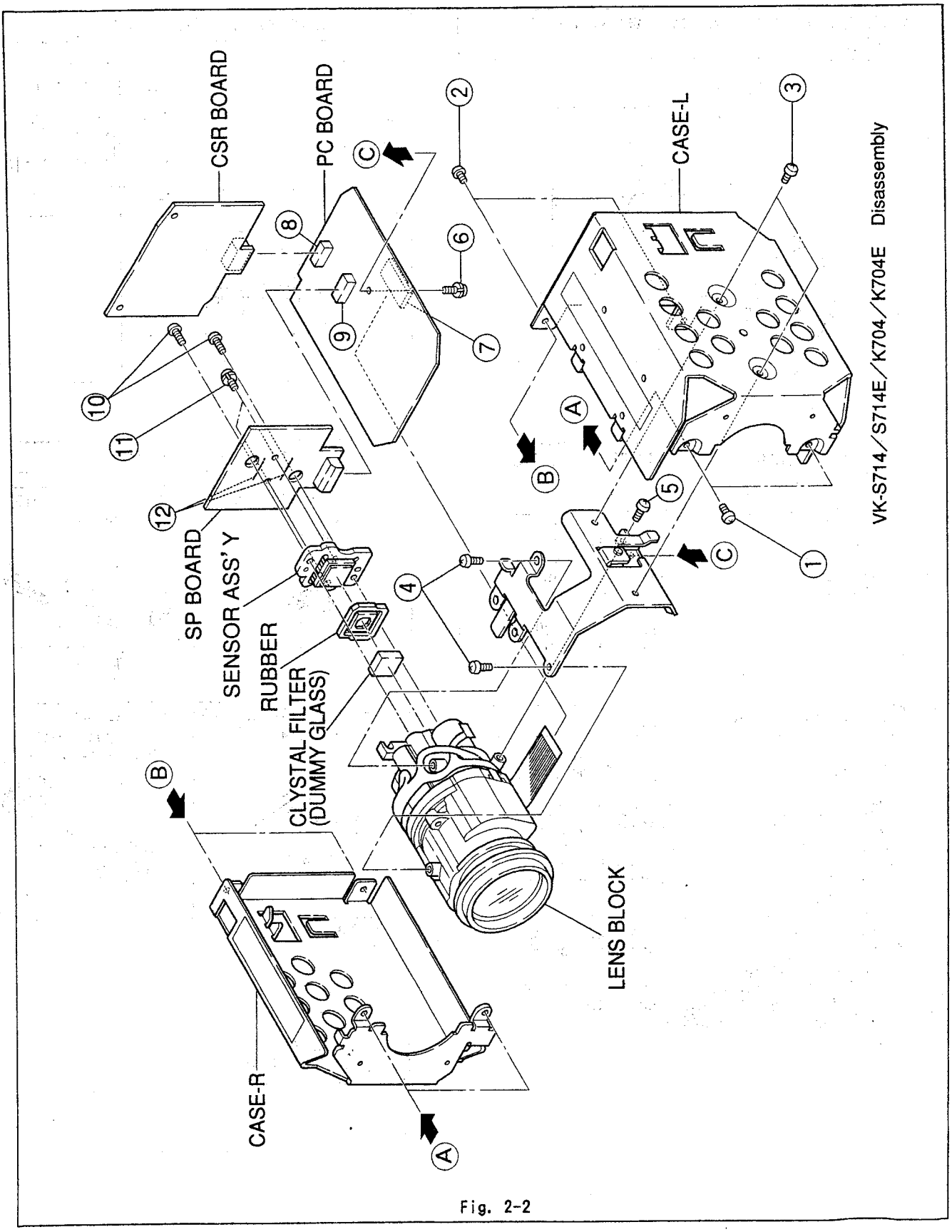


Fig. 2-2

CHAPTER 3 ELECTRIC CIRCUIT ADJUSTMENT

1 CIRCUIT BOARD LOCATIONS AND ADJUSTMENT/ SERVICE POSITION

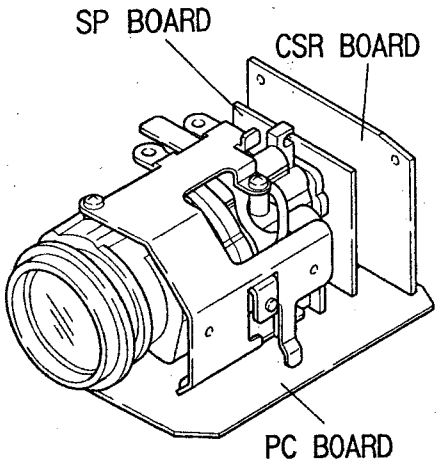


Fig. 3-1

2 TEST EQUIPMENT AND CHARTS NECESSARY FOR ADJUSTMENT

TEST EQUIPMENT

- Oscilloscope (dual trace) or Vectorscope
- Color Monitor TV

CHARTS

- Gray scale chart
- Color bar chart
- Resolution chart
- Backfocus adjustment chart
- Light box (3100K)
- Light balancing filter C12

3 BEFORE STARTING ADJUSTMENT

1) Use a light box with minimum flickering. Control the color temperature of the light box carefully.
2) When using the video output to perform adjustment, be sure to terminate the video output with 75Ω.
3) Place the chart (light box) approx. 30cm away from the camera (lens surface) when otherwise not specified.
4) Point the camera at the chart to fill the video period when otherwise not specified.
5) Use the 10:1 probe of the oscilloscope when otherwise not specified.
6) When "Trigger the oscilloscope internally" is specified, set the time base of the oscilloscope to 10μs/div.

4 LIST OF CHARTS FOR ADJUSTMENT

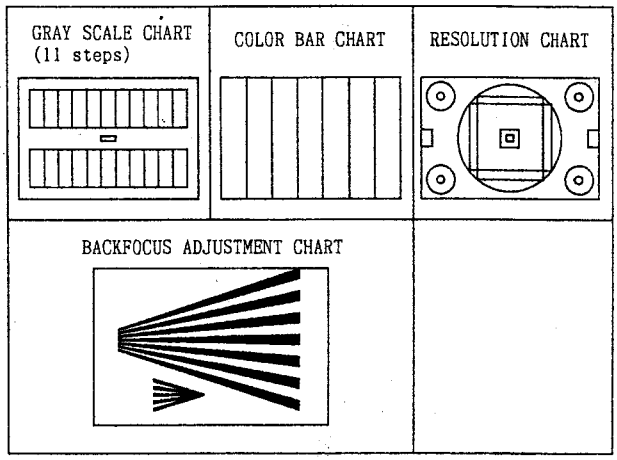
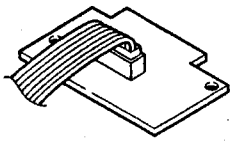


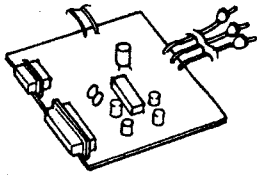
Fig. 3-2

5 LIST OF ADJUSTMENT JIGS, ETC.

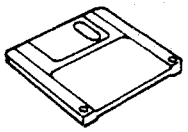
1. DSP INTERFACE CONNECT JIG [New jig] No. 7069179



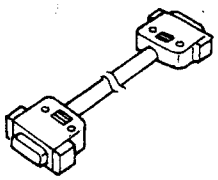
2. DSP INTERFACE JIG No. 7099448



3. CAMERA ADJUSTMENT F/D 3.5inch [New jig] No. 7069178



4. RS-232C CABLE (Straight type) [Generally available]



5. PERSONAL COMPUTER [Generally available]

Fig. 3-3

6 ADJUSTMENT PROCEDURE

Note 1: To complete adjsutment, press the ESC (escape) key twice to restore the MS-DOS screen and then turn off the camera and jigs.
Note 2: The following describes an example of the instructions of the personal computer and the menu display; they are different depending on the personal computer manufacuturer and model. Refer to the instruction manual of personal computer.
Note 3: When an error message appears during adjsutment, refer to "7. Error Messages". If a key is pressed after an error message appears, the ADJUSTMENT MENU is restored.

●6-1. Connection for Adjustment

Note 1: Connect the camera, personal computer, etc. as shown in Fig. 3-4.
Note 2: Check that the camera is turned on.

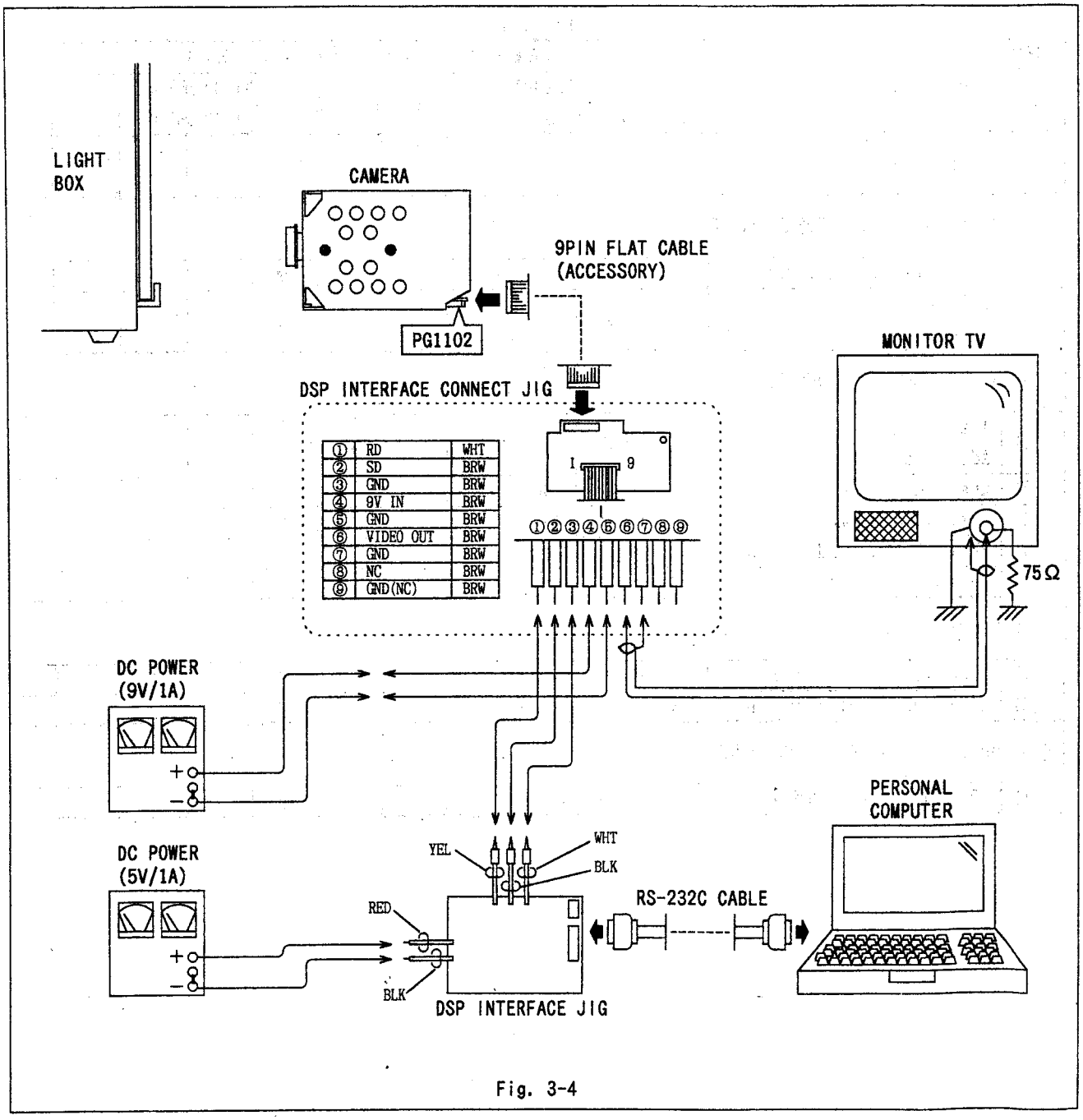


Fig. 3-4

●6-2. Adjustment After Replacing Major Components

After replacing major components, perform adjustments, referring to Table 3-1 below. The following table shows the minimum adjustments required after major components are replaced. The table below may not apply when several components are replaced, depending on the symptom of the defect.

Note 1: When the EEP ROM, PC board is replaced, initialize the EEPROM, referring to "6-4. Initial Setting by Model".
Note 2: After replacing the IC1103 (DSP) with the IC of the different model, perform all adjustment.
Note 3: Perform all sdjustments after executing the initialization according to "6-4. Initial Setting by Model".

■For TYPE S714/S714E

Table 3-1

ITEM No.	NAME OF ADJUSTMENT	NAME OF MAJOR COMPONENTS										
		SP BOARD	PC BOARD	IC1001 (SP)	IC1101	IC1103	IC1106	IC1107	IC1201 IC1202	LENS BLOCK		
Initial Setting by Model			●					●				
ELECTRIC VOLUME ADJUSTMENT PROCEDURE												
(1)	CDS Offset Adjustment		●		●			●				
(2)	CDS Sampling Pulse Adjustment		●			●		●				
DIGITAL ADJUSTMENT PROCEDURE												
(1)	Auto Iris Control Adjustment	●	●	●			●	●	●	●		
(2)	Knee Adjustment	●	●	●	●			●				
(3)	Matrix Adjustment	●	●	●				●				
(4)	White Balance Adjustment	●	●	●				●				
(5)	Chroma Gain Adjustment	●	●	●				●				
AUTO FOCUS ADJUSTMENT PROCEDURE												
(1)	Zoom Trace Adjustment	●	●	●				●		●		
(2)	AF Noise Level Adjustment	●	●	●				●		●		
SPOT NOISE ADJUSTMENT PROCEDURE												
(1)	SPOT NOISE ADJUSTMENT	●	●	●				●				

■For TYPE K704/K704E

Table 3-2

ITEM No.	NAME OF ADJUSTMENT	NAME OF MAJOR COMPONENTS										
		SP BOARD	PC BOARD	IC1001 (SP)	IC1101	IC1103	IC1106	IC1107	IC1201 IC1202	LENS BLOCK		
Initial Setting by Model			●					●				
ELECTRIC VOLUME ADJUSTMENT PROCEDURE												
(1)	CDS Offset Adjustment		●		●			●				
(2)	Sensor Sub Voltage Adjustment	●	●		●			●				
(3)	CDS Sampling Pulse Adjustment		●			●		●				
DIGITAL ADJUSTMENT PROCEDURE												
(1)	Auto Iris Control Adjustment	●	●	●			●	●	●	●		
(2)	Knee Adjustment	●	●	●	●			●				
AUTO FOCUS ADJUSTMENT PROCEDURE												
(1)	Zoom Trace Adjustment	●	●	●				●		●		
(2)	AF Noise Level Adjustment	●	●	●				●		●		
SPOT NOISE ADJUSTMENT PROCEDURE												
(1)	SPOT NOISE ADJUSTMENT	●	●	●				●				

■For TYPE K714/K714E

Table 3-3

ITEM No.	NAME OF ADJUSTMENT	NAME OF MAJOR COMPONENTS										
		SP BOARD	PC BOARD	IC1001 (SP)	IC1101	IC1103	IC1106	IC1107	IC1201 IC1202	LENS BLOCK		
Initial Setting by Model			●					●				
ELECTRIC VOLUME ADJUSTMENT PROCEDURE												
(1)	CDS Offset Adjustment		●		●			●				
(2)	CDS Sampling Pulse Adjustment		●			●		●				
DIGITAL ADJUSTMENT PROCEDURE												
(1)	Auto Iris Control Adjustment	●	●	●			●	●	●	●		
(2)	Knee Adjustment	●	●	●	●			●				
AUTO FOCUS ADJUSTMENT PROCEDURE												
(1)	Zoom Trace Adjustment	●	●	●				●		●		
(2)	AF Noise Level Adjustment	●	●	●				●		●		
SPOT NOISE ADJUSTMENT PROCEDURE												
(1)	SPOT NOISE ADJUSTMENT	●	●	●				●				

●6-3. How to start the MAP

PROCEDURE

1) Turn the personal computer on and start the MS-DOS system. (Fig. 3-5)

2) Load the adjustment floppy disk into disk drive B and press [B] [:] then [ENTER].
(B may be small letter.) (Fig. 3-6)

Note 1: If the camera adjustment floppy disk is loaded into disk drive A, press [A] [:] then [ENTER].

3) Press [S] [M] [A] [P] [_] [I] [B] [M] [(SPACE)] [1] then [ENTER].
The MAP starts and the MODEL SELECT MENU shown Fig. 3-9 appears.

Note 2: When you use a personal computer with two serial interface connectors and connect the DSP jig to serial interface connector 2, press SMAP_IBM 2.

4) Select the number accodding to the model.
If [ESC] (escape) is pressed, the display before the MAP starts (MS-DOS) is restored.

Note 3: If you specify the wrong model, press [ESC] (escape) to restore the MODEL SELECT display, then specify the correct model.

Note 4: If you select number without a model name by mistake, the message shown in Fig. 3-12 will appear in the computer's display.
Press any key to return the display to Fig. 3-9 (MODEL SELECT MENU).

Note 5: If the required model is not found, press the [P] key and select the model from the next screen.

```
F>
```
Fig. 3-5

↓ Load the camera adj. floppy disk into disk drive B.

↓ Press [B] [:] [ENTER]

```
F>B:
B>
```
Fig. 3-6

↓ Press [S] [M] [A] [P] [_] [I] [B] [M] [(SPACE)] [1] [ENTER]

```
F>B:
B>SMAP_IBM 1
```
Fig. 3-7

↓

```
Manual adjustment program for service station
        Copyright (C) Hitachi LTD
```
Fig. 3-8

↓

MODEL SELECT MENU

```
**********************************************
*************** MODEL SELECT *****************
**********************************************

        [1]   XXXXXXXX
        [2]   XXXXXXXX
        [3]   XXXXXXXX

        [P]   NEXT SELECTION
        [ESC] END

    Please select the type of the set.
  Press [1] - [3] or [P] or [ESC]
```
Fig. 3-9

↓ Press numeric key

```
    Selected model is XXXXXXXX
      Are you sure? (Y/N)
```
Fig. 3-10

↓

MAIN MENU

```
**********************************************
********* MANUAL ADJUSTMENT PROGRAM **********
**********************************************

        [A]   DATA INITIALIZE
        [B]   ELECTRIC VOLUME
        [C]   ADJUSTMENT
        [D]   AUTO FOCUS
        [E]   SPOT NOISE

        [ESC] END

    Please select [A] - [F] or [ESC]
```
Fig. 3-11

MESSAGE WHEN OPERATED BY MISTAKE

```
    Can not find the DATA FILE
    **** PRESS ANY KEY ****
```
Fig. 3-12

●6-4. Initial Setting by Model

1. This item describes how to initialize the EEPROM. Be sure to perform this item after replacing the EEPROM, PC board. When other components are replaced, normally, it is not necessary to initialize the EEPROM.

2. Be sure to perform the following adjustments after completing the initial setting.
   「6-5. Electric Volume Adjustment Procedure」
   「6-6. Digital Adjustment Procedure」
   「6-7. Autofocus Adjustment Procedure」

PROCEDURE

1) Start the MAP.

2) Press [A] to select INITIALIZE. (Fig. 3-13)

3) Press [Y] to start. (Fig. 3-14)

4) If there are no abnormalities in the camera, the message shown in Fig. 3-15 is displayed in the computer's display for a while, and then the message informing you that the initial setting has been completed (shown in Fig. 3-16 is displayed.

5) When the display (shown in Fig. 3-16) appears on the computer's screen, press any key and wait for approx. 10 seconds. (Fig.3-17) The computer's screen will return to Fig. 3-13 (MAIN MENU).

MAIN MENU

```
**********************************************
********* MANUAL ADJUSTMENT PROGRAM **********
**********************************************

        [A]   DATA INITIALIZE
        [B]   ELECTRIC VOLUME
        [C]   ADJUSTMENT
        [D]   AUTO FOCUS
        [E]   SPOT NOISE

        [ESC] END

    Please select [A] - [E] or [ESC]
```

Fig. 3-13

↓ Press [A]

```
<< DATA WRITING >>
START TO SEND DATA.     (Y/N)
```

Fig. 3-14

↓ Press [Y]

```
<< DATA WRITING >>
PLEASE WAIT A MOMENT
```

Fig. 3-15

```
<< DATA WRITING >>
PLEASE WAIT A MOMENT
FINISHED WRITING DATA !!

PRESS ANY KEY !
```

Fig. 3-16

↓ Press any key

```
PLEASE WAIT AROUND 10SEC
```

Fig. 3-17

↓ Return to MAIN MENU

●6-5. Electric Volume Adjustment Procedure

·When the EEPROM, PC board is replaced, initialize the EEPROM, referring to "6-4. Initial Setting By Model" then perform all the electric volume adjustments.

PROCEDURE

1) Start the MAP.

2) Press [B] to select ELETRIC VOLUME. (Fig. 3-18)

3) Select the number of the required adjustment.
   ·Fig. 3-19-1: For TYPE S714/S714E
                 TYPE K714/K714E
   ·Fig. 3-19-2: For TYPE K704/K704E

Note 2: If [ESC] (escape) is pressed, the computer's display returns to Fig. 3-18 (MAIN MENU).

Note 3: To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera and jig.

MAIN MENU

```
**********************************************
********* MANUAL ADJUSTMENT PROGRAM **********
**********************************************

          [A]   DATA INITIALIZE
          [B]   ELECTRIC VOLUME
          [C]   ADJUSTMENT
          [D]   AUTO FOCUS
          [E]   SPOT NOISE

          [ESC] END

      Please select [A] - [E] or [ESC]
```

Fig. 3-18

↓

Press [B]

↓

For TYPE S714/S714E/K714/K714E

ELECTRIC VOLUME ADJ. MENU

```
**********************************************
************ ELECTRIC VOLUME *****************
**********************************************

          [1]   CDS OFFSET
          [2]   CDS SAMPLING PULSE

          [ESC] RETURN TO MAIN MENU

      Please select [1], [2] or [ESC]
```

Fig. 3-19-1

For TYPE K704/K704E

ELECTRIC VOLUME ADJ. MENU

```
**********************************************
************ ELECTRIC VOLUME *****************
**********************************************

          [1]   CDS OFFSET
          [2]   SENSOR SUB VOLTAGE
          [3]   CDS SAMPLING PULSE

          [ESC] RETURN TO MAIN MENU

      Please select [1] - [3] or [ESC]
```

Fig. 3-19-2

■For TYPE S714/S714E/K714/K714E

(1) CDS Offset Adjustment

Purpose	·To determine the DC offset levels when the AGC is set to the minimum and maximum gains.
Incompleted Phenomenon	·When a subject is illuminated brightly in low lighting, a white band appears across the top of the screen.
Test Point	———
Equipment/Jig	———
Condition	———

PROCEDURE

ELECTRIC VOLUME ADJ. MENU

```
**********************************************
************* ELECTRIC VOLUME ****************
**********************************************
        [1]   CDS OFFSET
        [2]   CDS SAMPLING PULSE
        [ESC] RETURN TO MAIN MENU
    Please select [1], [2] or [ESC]
```

↓

Press [1] key to select CDS OFFSET.

↓

```
<< ADJUSTMENT OF CDS OFFSET >>
  PLEASE WAIT AROUND 50 SEC.
```

↓

```
<< ADJUSTMENT OF CDS OFFSET >>
    FINISHED WRITING DATA.
    ADJUSTMENT COMPLETED.
        PRESS ANY KEY
```

↓

Press any key.

↓

```
PLEASE WAIT AROUND 10SEC
```

↓

Return to ELECTRIC VOLUME ADJ. MENU.

(2) CDS Sampling Pulse Adjustment

Purpose	·To suppress noise in the CCD sensor output signal and maximize the signal level.
Incompleted Phenomenon	·Diagonal beats and horizontal noise occur.
Test Point	———
Equipment/Jig	———
Condition	·Leave the camera for more than 2 minutes untill the circuits are stabilized after turing it on, then start adjustment.

PROCEDURE

ELECTRIC VOLUME ADJ. MENU

```
**********************************************
************* ELECTRIC VOLUME ****************
**********************************************
        [1]   CDS OFFSET
        [2]   CDS SAMPLING PULSE
        [ESC] RETURN TO MAIN MENU
    Please select [1], [2] or [ESC]
```

↓

Press [2] key to select CDS SAMPLING PULSE.

↓

```
<< ADJUSTMENT OF CDS SAMPLING PULSE >>
        << NOW ADJUSTING >>
```

↓

```
<< ADJUSTMENT OF CDS SAMPLING PULSE >>
    FINISHED WRITING DATA.
    ADJUSTMENT COMPLETED.
        PRESS ANY KEY
```

↓

Press any key.

↓

```
PLEASE WAIT AROUND 10SEC
```

↓

Return to ELECTRIC VOLUME ADJ. MENU.

■For TYPE K704/K704E

(1) CDS Offset Adjustment

Purpose	·To determine the DC offset levels when the AGC is set to the minimum and maximum gains.
Incompleted Phenomenon	·When a subject is illuminated brightly in low lighting, a white band appears across the top of the screen.
Test Point	———
Equipment/Jig	———
Condition	———

PROCEDURE

ELECTRIC VOLUME ADJ. MENU

```
**********************************************
************** ELECTRIC VOLUME ***************
**********************************************

        [1]    CDS OFFSET
        [2]    SENSOR SUB VOLTAGE
        [3]    CDS SAMPLING PULSE

        [ESC]  RETURN TO MAIN MENU

     Please select [1] - [3] or [ESC]
```

Press [1] key to select CDS OFFSET.

```
<< ADJUSTMENT OF CDS OFFSET >>
PLEASE WAIT AROUND 50 SEC.
```

```
<< ADJUSTMENT OF CDS OFFSET >>
   FINISHED WRITING DATA.
   ADJUSTMENT COMPLETED.
      PRESS ANY KEY
```

Press any key.

```
PLEASE WAIT AROUND 10SEC
```

Return to ELECTRIC VOLUME ADJ. MENU.

(2) Sensor Sub Voltage Adjustment

Purpose	·To determine the level of the pulse output from the CCD sensor. To determine the bias voltage of the CCD sensor.
Incompleted Phenomenon	·No picture. ·No color. ·Rough picture. ·Smear occurs.
Test Point	———
Equipment/Jig	———
Condition	·Point the camera at the light box without a chart to full the screen (at wide-angle).

PROCEDURE

ELECTRIC VOLUME ADJ. MENU

```
**********************************************
************** ELECTRIC VOLUME ***************
**********************************************

        [1]    CDS OFFSET
        [2]    SENSOR SUB VOLTAGE
        [3]    CDS SAMPLING PULSE

        [ESC]  RETURN TO MAIN MENU

     Please select [1] - [3] or [ESC]
```

Press [2] key to select SENSOR SUB VOLTAGE.

```
<< ADJUSTMENT OF SENSOR SUB VOLTAGE >>
<< NOW ADJUSTING >>
```

```
<< ADJUSTMENT OF SENSOR SUB VOLTAGE >>
   FINISHED WRITING DATA.
   ADJUSTMENT FINISHED.
      PRESS ANY KEY.
```

Return to ELECTRIC VOLUME ADJ. MENU.

■For TYPE K704/K704E

(3) CDS Sampling Pulse Adjustment

Purpose	·To suppress noise in the CCD sensor output signal and maximize the signal level.
Incompleted Phenomenon	·Diagonal beats and horizontal noise occur.
Test Point	————
Equipment/Jig	————
Condition	·Leave the camera for more than 2 minutes untill the circuits are stabilized after turing it on, then start adjustment.

PROCEDURE

ELECTRIC VOLUME ADJ. MENU

```
**********************************************
************** ELECTRIC VOLUME ***************
**********************************************

        [1]   CDS OFFSET
        [2]   SENSOR SUB VOLTAGE
        [3]   CDS SAMPLING PULSE

        [ESC] RETURN TO MAIN MENU

    Please select [1] - [3] or [ESC]
```

↓

Press [3] key to select CDS SAMPLING PULSE.

↓

```
<< ADJUSTMENT OF CDS SAMPLING PULSE >>
        << NOW ADJUSTING >>
```

↓

```
<< ADJUSTMENT OF CDS SAMPLING PULSE >>
        FINISHED WRITING DATA.
        ADJUSTMENT COMPLETED.
            PRESS ANY KEY
```

↓

Press any key.

↓

```
PLEASE WAIT AROUND 10SEC
```

↓

Return to ELECTRIC VOLUME ADJ. MENU.

●6-6. Digital Adjustment Procedure

1. When the EEPROM, PC board is replaced, initialize the EEPROM, refering to "6-4. Initial Setting By Model" then perform all the digital adjustment.
2. When an error message appears during adjustment, refer to "7. ERROR MESSAGES". If a key is pressed after an error message appears, the ADJUSTMENT MENU is restored.
3. Perform auto iris adjustment [1.AUTO IRIS CONTROL] and knee adjustment [2.KNEE] in the following order.
   ① Auto Iris Adjustment. (Perform the following auto focus adjustment if "ADJUSTMENT OF HALL CURVE" is not completed.)
   ② Zoom Trace Adjustment in AUTOFOCUS ADJUSTMENT PROCEDURE.
   ③ AF Noise Level Adjustment in AUTOFOCUS ADJUSTMENT PROCEDURE. (Auto Iris adjustment: All three items, "ADJUSTMENT OF IRIS OPEN & CLOSE", "ADJUSTMENT OF IRIS", "ADJUSTMENT OF HALL CURVE" should be completed.)
   ④ Knee Adjustment.

PRROCEDURE

1) Start the MAP.

2) Press [C] to select ADJUSTMENT. (Fig. 3-20)

3) Select the number of the required adjustment.
   ·Fig. 3-21-1: For TYPE S714/S714E
   ·Fig. 3-21-2: For TYPE K704/K704E
   For TYPE K714/K714E

Note 2: If [ESC] (escape) is pressed, the computer's display returns to Fig. 3-20 (MAIN MENU).
Note 3: To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera and jig.

MAIN MENU

```
**********************************************
********* MANUAL ADJUSTMENT PROGRAM **********
**********************************************

          [A]   DATA INITIALIZE
          [B]   ELECTRIC VOLUME
          [C]   ADJUSTMENT
          [D]   AUTO FOCUS
          [E]   SPOT NOISE

          [ESC] END

      Please select [A] - [E] or [ESC]
```

Fig. 3-20

↓ Press [C] ↓

For TYPE S714/S714E

ADJUSTMENT MENU

```
**********************************************
*************** ADJUSTMENT *******************
**********************************************

          [1]   AUTO IRIS CONTROL
          [2]   KNEE
          [3]   MATRIX
          [4]   WHITE BALANCE
          [5]   CHROMA GAIN

          [ESC] RETURN TO MAIN MENU

      Please select [1] - [5] or [ESC]
```

Fig. 3-21-1

For TYPE K704/K704E/K714/K714E

ADJUSTMENT MENU

```
**********************************************
*************** ADJUSTMENT *******************
**********************************************

          [1]   AUTO IRIS CONTROL
          [2]   KNEE

          [ESC] RETURN TO MAIN MENU

      Please select [1], [2] or [ESC]
```

Fig. 3-21-2

■For TYPE S714/S714E

(1) Auto Iris Control Adjustment

Purpose	·To set the iris control data.
Incompleted Phenomenon	·The picture becomes too bright. ·The picture becomes too dark.
Test Point	———
Equipment/Jig	———
Condition	·Point the camera at the light box without a chart to fill the screen (at wide-angle).

PROCEDURE

ADJUSTMENT MENU

```
**********************************************
********** ADJUSTMENT ********************
**********************************************

      [1]   AUTO IRIS CONTROL
      [2]   KNEE
      [3]   MATRIX
      [4]   WHITE BALANCE
      [5]   CHROMA GAIN
      [ESC] RETURN TO MAIN MENU

   Please select [1] - [5] or [ESC]
```

Press [1] key to select AUTO IRIS CONTROL.

```
<<ADJUSTMENT OF IRIS OPEN & CLOSE>>
   PLEASE WAIT AROUND 10 SEC.
```

```
<<ADJUSTMENT OF IRIS OPEN & CLOSE>>
   PLEASE WAIT AROUND 10 SEC.

   DATA WRITEN INTO EEPROM
   ADJUSTMENT FINISHED

      PRESS ANY KEY
```

Press any key, and the display changes as follows.

```
<< ADJUSTMENT OF IRIS >>
   PLEASE WAIT AROUND 20 SEC.
```

```
<< ADJUSTMENT OF IRIS >>
   PLEASE WAIT AROUND 20 SEC.

ROUGH ADJUSTMENT     : XX TIMES
FINE ADJUSTMENT      : XX TIMES

      ADJUSTMENT FINISHED

      PRESS ANY KEY
```

Press any key, and the display changes as follows.

```
<< ADJUSTMENT OF HALL CURVE >>
   PLEASE WAIT AROUND 30 SEC..
```

```
<< ADJUSTMENT OF HALL CURVE >>
   PLEASE WAIT AROUND 30 SEC.

                *
ADJUSTMENT POINT 0 1 2 3 4 5 6 7 8 9 A B C
```

```
<< ADJUSTMENT OF HALL CURVE >>
   PLEASE WAIT AROUND 30 SEC.

                * * * * * * * * * * * * * *
ADJUSTMENT POINT 0 1 2 3 4 5 6 7 7 8 9 A B C

   DATA WRITEN INTO EEPROM
   ADJUSTMENT FINISHED

      PRESS ANY KEY
```

Press any key, and the display changes as follows.

```
   ADJUSTMENT FINISHED

      PRESS ANY KEY
```

Press any key.

```
   PLEASE WAIT AROUND 10SEC
```

Return to ADJUSTMENT MENU.

(2) Knee Adjustment (Fig. 3-22)

Purpose	·To determine the knee level.
Incompleted Phenomenon	·Color in the very bright section is defective.
Test Point	·Video Out
Equipment/Jig	·Oscilloscope (Waveform Monitor)
Condition	·Point at a gray scale chart.

PROCEDURE

ADJUSTMENT MENU

```
**********************************************
*************** ADJUSTMENT *******************
**********************************************

        [1]    AUTO IRIS CONTROL
        [2]    KNEE
        [3]    MATRIX
        [4]    WHITE BALANCE
        [5]    CHROMA GAIN
        [ESC]  RETURN TO MAIN MENU

     Please select [1] - [5] or [ESC]
```

Press [2] key to select KNEE.

```
*** KNEE ADJUSTMENT **** STEP 1

*THIS ADJUSTMENT ONLY NEEDED AFTER REPLACING IC1101 OR IC1107.*
*THE [1] IRIS CONTROL ADJUSTMENT SHOILD HAVE JUST BEEN
 COMPLETED BEFORE PERFORMING THE FOLLOWING KNEE ADJUSTMENT
 PROCEDURE.

   PLEASE POINT AT THE CHART AND PRESS THE FOLLOWING KEY
              RETURN TO MENU    [ESC]
              GO TO NEXT STEP   [ENTER]
```

Press [ENTER] key to start the next step.

```
*** KNEE ADJUSTMENT *** STEP 1
*** WAIT A MOMENT ***
```

```
**** KNEE ADJUSTMENT **** STEP 2
SET LUMINANCE LEVEL TO
          100 (+/- 5) IRE OR 715 (+/- 35) mV

          ROUGH ADJUSTMENT
          [U]          UP
          [D]          DOWN

          FINE ADJUSTMENT
          [Ctrl]+[U]   UP
          [Ctrl]+[D]   DOWN

          [ENTER]      DECISION
```

Press the [U] and [D] keys to set the amplitude level to around 715mVp-p.
Press the [Ctrl] key and hold it down, then press the [U] and [D] keys to adjust the amplitude level to 715mVp ± 35mVp-p.

Press [ENTER] key to start the next step.

```
**** KNEE ADJUSTMENT **** STEP 3
ADJUST THE LUMINANCE LEVEL TO
          MATCH THE LEVEL FROM SETP 2

     ROUGH ADJUSTMENT
     [U]          UP
     [D]          DOWN

     FINE ADJUSTMENT
     [Ctrl]+[U]   UP
     [Ctrl]+[D]   DOWN

     [C]  REREAD THE LEVEL FROM STEP 2
     [ENTER]      DECISION
```

Press the [U] and [D] keys to bring the amplitude level near to the level in step 2.
Press the [Ctrl] key and hold it down, then press the [U] and [D] keys to match the amplitude level to that in step 2.

Press the [C] key. The level in step 2 can be checked.

```
**** KNEE ADJUSTMENT **** STEP 3
WAVEFORM ON OSCILLOSCOPE IS NOW
DISPLAYING AMPLITUDE AS SET IN SETP 2
(PRESS C TO RETURN TO STEP 3 MENU)
```

Press [ENTER] key, and the display changes as follows.

```
WRITING TO EEPROM NOW
```

```
*** KNEE ADJUSTMENT ***
          END
     PRESS ANY KEY
```

Press any key.

```
PLEASE WAIT AROUND 10SEC
```

Return to ADJUSTMENT MENU.

Waveforms

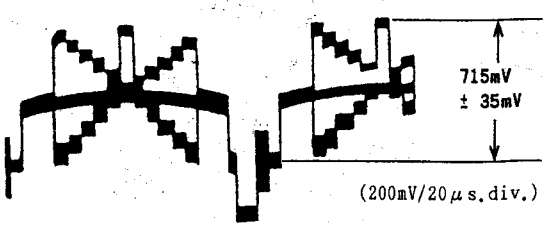


Fig. 3-22

■For TYPE S714/S714E

(3) Matrix Adjustment (Fig. 3-23)

Purpose	To compensate for uneveness in the chroma signal.
Incompleted Phenomenon	Color reproduction becomes defective.
Test Point	·Video Out
Equipment/Jig	·Oscilloscope
Condition	·Point at a color bar chart.

PROCEDURE

ADJUSTMENT MENU

```
**********************************************
*************** ADJUSTMENT *******************
**********************************************

        [1]   AUTO IRIS CONTROL
        [2]   KNEE
        [3]   MATRIX
        [4]   WHITE BALANCE
        [5]   CHROMA GAIN

        [ESC] RETURN TO MAIN MENU

    Please select [1] - [5] or [ESC]
```

↓ Press [3] key to select MATRIX.

```
    << ADJUSTMENT OF BLUE MATRIX >>
      ROUGH ADJUSTMENT
      [U]          UP
      [D]          DOWN

      FINE ADJUSTMENT
      [Ctrl]+[U]   UP
      [Ctrl]+[D]   DOWN

      [ENTER]      RETURN TO MENU
      [ESC]        QUIT
```

↓ Press the [D] key to minimize the yellow (YEL) level. Press the [U] key so the ratio between yellow (YEL) and blue (BLU) levels is 1:6
Press the [Ctrl] key and hold it down, then press the [U] and [D] keys so the ratio between yellow (YEL) and blue (BLU) levels is 1:6

↓ Press [ENTER] key, and the display changes as follows.

```
DATA WRITING TO EEPROM
```

↓

```
ADJUSTMENT FINISHED
PRESS ANY KEY
```

↓ Press any key.

```
PLEASE WAIT AROUND 10SEC
```

↓ Return to ADJUSTMENT MENU.

Waveforms

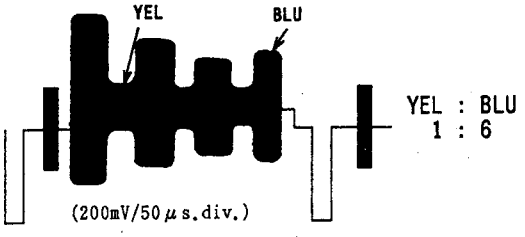


Fig. 3-23

(4) White Balance Adjustment

Purpose	To set white balance under the color temperature which becomes a reference for the auto white balance circuit.
Incompleted Phenomenon	·Color of the subject is different from that of the picture. ·A white subject is not seen as white.
Test Point	·Video Out
Equipment/Jig	———
Condition	·Attach a C12 filter. ·Point at a gray scale chart (at wide-angle).

PROCEDURE

ADJUSTMENT MENU

```
**********************************************
*************** ADJUSTMENT *******************
**********************************************

        [1]   AUTO IRIS CONTROL
        [2]   KNEE
        [3]   MATRIX
        [4]   WHITE BALANCE
        [5]   CHROMA GAIN

        [ESC] RETURN TO MAIN MENU

    Please select [1] - [5] or [ESC]
```

↓ Press [4] key to select WHITE BALANCE.

```
WHITE BALANCE ADJUSTMENT
INPUT DATA OF OFFSET  FOR R-B --> 00
```

↓ Press [0 (ZERO)] [5] to input the data.

↓ Press ENTER key, and the display changes as follows.

```
WHITE BALANCE ADJUSTMENT
INPUT DATA OF OFFSET  FOR Mg-G --> 00
```

↓ Press [1] [0 (ZERO)] to input the data.

↓ Press ENTER key, and the display changes as follows.

```
WHITE BALANCE ADJUSTMENT
PLEASE WAIT A MOMENT
```

↓

```
WHITE BALANCE ADJUSTMENT
ADJUSTMENT COMPLETED.
COMPLETED EEPROM WRITING.
PRESS ANY KEY
```

↓ Press any key.

```
PLEASE WAIT AROUND 10SEC
```

↓ Return to ADJUSTMENT MENU.

(5) Chroma Gain Adjustment [Figs. 3-24, Figs. 3-25-1: S714/Figs. 3-25-2: S714E]

Purpose	To set the color saturation under the reference color temperature.
Incompleted Phenomenon	·Color of the picture is denser than that of the subject. ·Color of the picture is lighter than that of the subject.
Test Point	·Video Out
Equipment/Jig	·Oscilloscope (Vectorscope)
Condition	·Attach a C12 filter. ·Point at a color bar chart.

PROCEDURE

ADJUSTMENT MENU

```
**********************************************
*************** ADJUSTMENT *******************
**********************************************
        [1]   AUTO IRIS CONTROL
        [2]   KNEE
        [3]   MATRIX
        [4]   WHITE BALANCE
        [5]   CHROMA GAIN
        [ESC] RETURN TO MAIN MENU
    Please select [1] - [5] or [ESC]
```

↓

Press [5] key to select CHROMA GAIN.

↓

```
<< ADJUSTMENT OF CHROMA GAIN >>
ROUGH ADJUSTMENT
[U]          CHROMA GAIN UP
[D]          CHROMA GAIN DOWN
FINE ADJUSTMENT
[Ctrl]+[U]   CHROMA GAIN UP
[Ctrl]+[D]   CHROMA GAIN DOWN
[ENTER]      SAVE & RETURN TO MENU
[ESC]        QUIT
```

↓

==== WHEN USING AN OSCILLOSCOPE ====

Press the [U] and [D] keys to set the red level to around 570mVp-p.
Press the [Ctrl] key and hold it down, then press the [U] and [D] keys so the red level is 570mV ± 20mVp-p. (Fig. 3-24)

==== WHEN USING A VECTORSCOPE ====

Press the [U] and [D] keys to set the red vector to around 200% of the burst.
Press the [Ctrl] key and hold it down, then press the [U] and [D] keys so the red vector is 200% ± 5%. (Figs. 3-25-1, 3-25-2)

↓

Press [ENTER] key, and the display changes as follows.

↓

```
DATA WRITING EEPROM
```

↓

```
ADJUSTMENT FINISHED
PRESS ANY KEY
```

↓

Press any key.

↓

```
PlEASE WAIT AROUND 10SEC
```

↓

Return to ADJUSTMENT MENU.

<OSCILLOSCOPE>

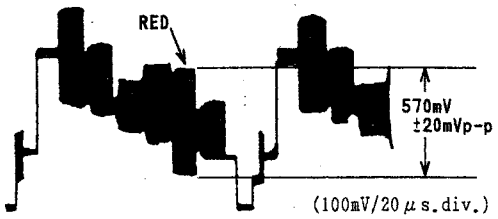


Fig. 3-24

<VECTORSCOPE>

[For TYPE S714]

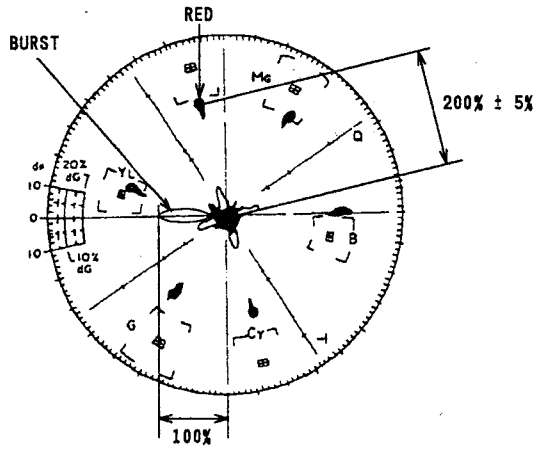


Fig. 3-25-1

[For TYPE S714E]

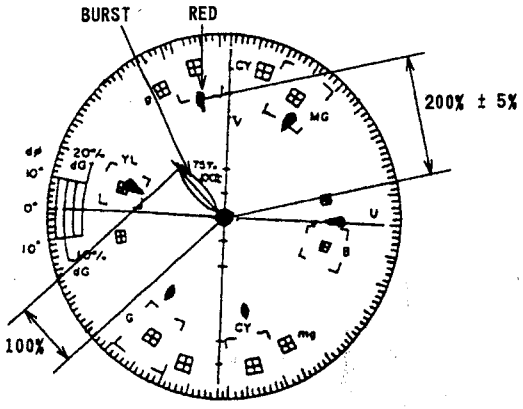


Fig. 3-25-2

■For TYPE K704/K704E/K714/K714E

(1) Auto Iris Control Adjustment

Purpose	·To set the iris control data.
Incompleted Phenomenon	·The picture becomes too bright. ·The picture becomes too dark.
Test Point	———
Equipment/Jig	———
Condition	·Point the camera at the light box without a chart to fill the screen (at wide-angle).

PROCEDURE

ADJUSTMENT MENU

```
**********************************************
*************** ADJUSTMENT *******************
**********************************************

        [1]   AUTO IRIS CONTROL
        [2]   KNEE
        [ESC] RETURN TO MAIN MENU

    Please select [1], [2] or [ESC]
```

↓

Press [1] key to select AUTO IRIS CONTROL.

↓

```
<<ADJUSTMENT OF IRIS OPEN & CLOSE>>
PLEASE WAIT AROUND 10 SEC.
```

↓

```
<<ADJUSTMENT OF IRIS OPEN & CLOSE>>
PLEASE WAIT AROUND 10 SEC.

DATA WRITEN INTO EEPROM
ADJUSTMENT FINISHED

PRESS ANY KEY
```

↓

Press any key, and the display changes as follows.

↓

```
<< ADJUSTMENT OF IRIS >>
PLEASE WAIT AROUND 20 SEC.
```

↓

```
<< ADJUSTMENT OF IRIS >>
PLEASE WAIT AROUND 20 SEC.

ROUGH ADJUSTMENT     : XX TIMES
FINE ADJUSTMENT      : XX TIMES

ADJUSTMENT FINISHED

PRESS ANY KEY
```

↓

Press any key, and the display changes as follows.

↓

```
<< ADJUSTMENT OF HALL CURVE >>
PLEASE WAIT AROUND 30 SEC.
```

↓

```
<< ADJUSTMENT OF HALL CURVE >>
PLEASE WAIT AROUND 30 SEC.

*
ADJUSTMENT POINT 0 1 2 3 4 5 6 7 8 9 A B C
```

↓

```
<< ADJUSTMENT OF HALL CURVE >>
PLEASE WAIT AROUND 30 SEC.

* * * * * * * * * * * * * *
ADJUSTMENT POINT 0 1 2 3 4 5 6 7 8 9 A B C

DATA WRITEN INTO EEPROM
ADJUSTMENT FINISHED

PRESS ANY KEY
```

↓

Press any key, and the display changes as follows.

↓

```
ADJUSTMENT FINISHED

PRESS ANY KEY
```

↓

Press any key.

↓

```
PLEASE WAIT AROUND 10SEC
```

↓

Return to ADJUSTMENT MENU.

(2) Knee Adjustment (Fig. 3-26)

Purpose	·To determine the knee level.
Incompleted Phenomenon	·Color in the very bright section is defective.
Test Point	·Video Out
Equipment/Jig	·Oscilloscope (Waveform Monitor)
Condition	·Point at a gray scale chart.

PROCEDURE

ADJUSTMENT MENU

```
**********************************************
*************** ADJUSTMENT *******************
**********************************************
        [1]    AUTO IRIS CONTROL
        [2]    KNEE
        [ESC]  RETURN TO MAIN MENU
    Please select [1], [2] or [ESC]
```

Press [2] key to select KNEE.

```
*** KNEE ADJUSTMENT **** STEP 1
*THIS ADJUSTMENT ONLY NEEDED AFTER REPLACING IC1101 OR IC1107.*
*THE [1] IRIS CONTROL ADJUSTMENT SHOILD HAVE JUST BEEN
 COMPLETED BEFORE PERFORMING THE FOLLOWING KNEE ADJUSTMENT
 PROCEDURE.
   PLEASE POINT AT THE CHART AND PRESS THE FOLLOWING KEY
          RETURN TO MENU   [ESC]
          GO TO NEXT STEP  [ENTER]
```

Press [ENTER] key to start the next step.

```
*** KNEE ADJUSTMENT *** STEP 1
*** WAIT A MOMENT ***
```

```
**** KNEE ADJUSTMENT **** STEP 2
SET LUMINANCE LEVEL TO
        100 (+/- 5) IRE OR 715 (+/- 35) mV
        ROUGH ADJUSTMENT
        [U]          UP
        [D]          DOWN
        FINE ADJUSTMENT
        [Ctrl]+[U]   UP
        [Ctrl]+[D]   DOWN
        [ENTER]      DECISION
```

Press the [U] and [D] keys to set the amplitude level to around 715mVp-p.
Press the [Ctrl] key and hold it down, then press the [U] and [D] keys to adjust the amplitude level to 715mVp ± 35mVp-p.

Press [ENTER] key to start the next step.

```
**** KNEE ADJUSTMENT **** STEP 3
ADJUST THE LUMINANCE LEVEL TO
          MATCH THE LEVEL FROM SETP 2
    ROUGH ADJUSTMENT
    [U]          UP
    [D]          DOWN
    FINE ADJUSTMENT
    [Ctrl]+[U]   UP
    [Ctrl]+[D]   DOWN
    [C]  REREAD THE LEVEL FROM STEP 2
    [ENTER]      DECISION
```

Press the [U] and [D] keys to bring the amplitude level near to the level in step 2.
Press the [Ctrl] key and hold it down, then press the [U] and [D] keys to match the amplitude level to that in step 2.

Press the [C] key. The level in step 2 can be checked.

```
**** KNEE ADJUSTMENT **** STEP 3
WAVEFORM ON OSCILLOSCOPE IS NOW
DISPLAYING AMPLITUDE AS SET IN SETP 2
(PRESS C TO RETURN TO STEP 3 MENU)
```

Press [ENTER] key, and the display changes as follows.

```
WRITING TO EEPROM NOW
```

```
*** KNEE ADJUSTMENT ***
        END
    PRESS ANY KEY
```

Press any key.

```
PLEASE WAIT AROUND 10SEC
```

Return to ADJUSTMENT MENU.

Waveforms

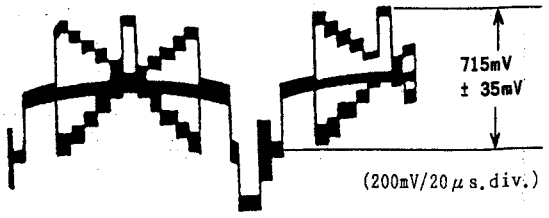


Fig. 3-26

●6-7. Autofocus Adjustment Procedure

•Be sure to perform this adjustment after replacing or initializing the lens block, parts in the PC board.

PROCEDURE

1) Start the MAP.

2) Press [D] to select AUTO FOCUS. (Fig. 3-27)

3) Select the number of the required adjustment. (Fig. 3-28)

Note 2: If [ESC] (escape) is pressed, the computer's display returns to Fig. 3-27 (MAIN MENU).
Note 3: To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera and jig.

MAIN MENU

```
**********************************************
********* MANUAL ADJUSTMENT PROGRAM **********
**********************************************

          [A]   DATA INITIALIZE
          [B]   ELECTRIC VOLUME
          [C]   ADJUSTMENT
          [D]   AUTO FOCUS
          [E]   SPOT NOISE

          [ESC] END

     Please select [A] - [E] or [ESC]
```

Fig. 3-27

↓ Press [D]

AF ADJ. MENU

```
**********************************************
********** AUTO FOCUS ADJUSTMENT *************
**********************************************

     [1]   ADJUSTMENT OF ZOOM/FOCUS TRACKING
     [2]   ADJUSTMENT OF AF NOISE LEVEL
     [ESC] RETURN TO MENU

     Please select [1], [2] or [ESC]
```

Fig. 3-28

(1) Zoom Trace Adjustment

Purpose	·To set the out-of-focus correction level during zooming.
Incompleted Phenomenon	·Focus is lost during zooming.
Equipment/Jig	·Color Video Monitor ·Backfocus Chart
Test Point	———
Condition	·Point at the backfocus chart, 1500±5 mm away from the lens surface. ·Light the chart with 200-400 lux.

Caution When Adjustment

1. Measure the distance between the chart and lens surface precisely.
2. Place the chart as parallel as possible to the lens surface.
3. The backfocus chart should always be at the center of the monitor screen when the zoom is set to the wide-angle and telephoto ends.
4. The zoom trace adjustment procedure is completed within 2 minutes after it is selected.
5. Do not place any obstruction between the lens and chart during adjustment.

PROCEDURE

AF ADJ. MENU

```
**********************************************
********** AUTO FOCUS ADJUSTMENT *************
**********************************************

    [1]    ADJUSTMENT OF ZOOM/FOCUS TRACKING
    [2]    ADJUSTMENT OF AF NOISE LEVEL
    [ESC]  RETURN TO MENU

      Please select [1], [2] or [ESC]
```

↓

Press [1] key to select ADJUSTMENT OF ZOOM/FOCUS TRACKING

↓

```
<< ADJUSTMENT OF ZOOM/FOCUS TRACKING >>

      |-----|-----|
      0%    50%   100%
```

↓

```
<< ADJUSTMENT OF ZOOM/FOCUS TRACKING >>

      ■■■■■■■■■■■■■
      0%    50%   100%

   ADJUSTMENT COMPLETED
     PRESS ANY KEY
```

↓

Press any key.

↓

PLEASE WAIT AROUN 10 SEC

↓

Return to AF ADJ. MENU.

(2) AF Noise Level Adjustment

Purpose	·To set the noise level.
Incompleted Phenomenon	·It takes time until a subject is brought into focus. ·Correct focus is not obtained.
Equipment/Jig	·Color Video Monitor
Test Point	———
Condition	·Set the focus to AUTO. ·Point at a light box without a chart inserted at a distance of up to 10cm.

Caution When Adjustment

1. Place the light box as parallel as possible to the lens surface.
2. The AF noise level adjustment procedure will be completed within thirty seconds after it is selected.

PROCEDURE

AF ADJ. MENU

```
**********************************************
********** AUTO FOCUS ADJUSTMENT *************
**********************************************

    [1]    ADJUSTMENT OF ZOOM/FOCUS TRACKING
    [2]    ADJUSTMENT OF AF NOISE LEVEL
    [ESC]  RETURN TO MENU

      Please select [1], [2] or [ESC]
```

↓

Press [2] key to select ADJUSTMENT OF AF NOISE LEVEL.

↓

```
<< ADJUSTMENT OF AF NOISE LEVEL >>

      |-----|-----|
      0%    50%   100%
```

↓

```
<< ADJUSTMENT OF AF NOISE LEVEL >>

      ■■■■■■■■■■■■■
      0%    50%   100%

   ADJUSTMENT COMPLETED
     PRESS ANY KEY
```

↓

Press any key.

↓

PLEASE WAIT AROUN 10 SEC

↓

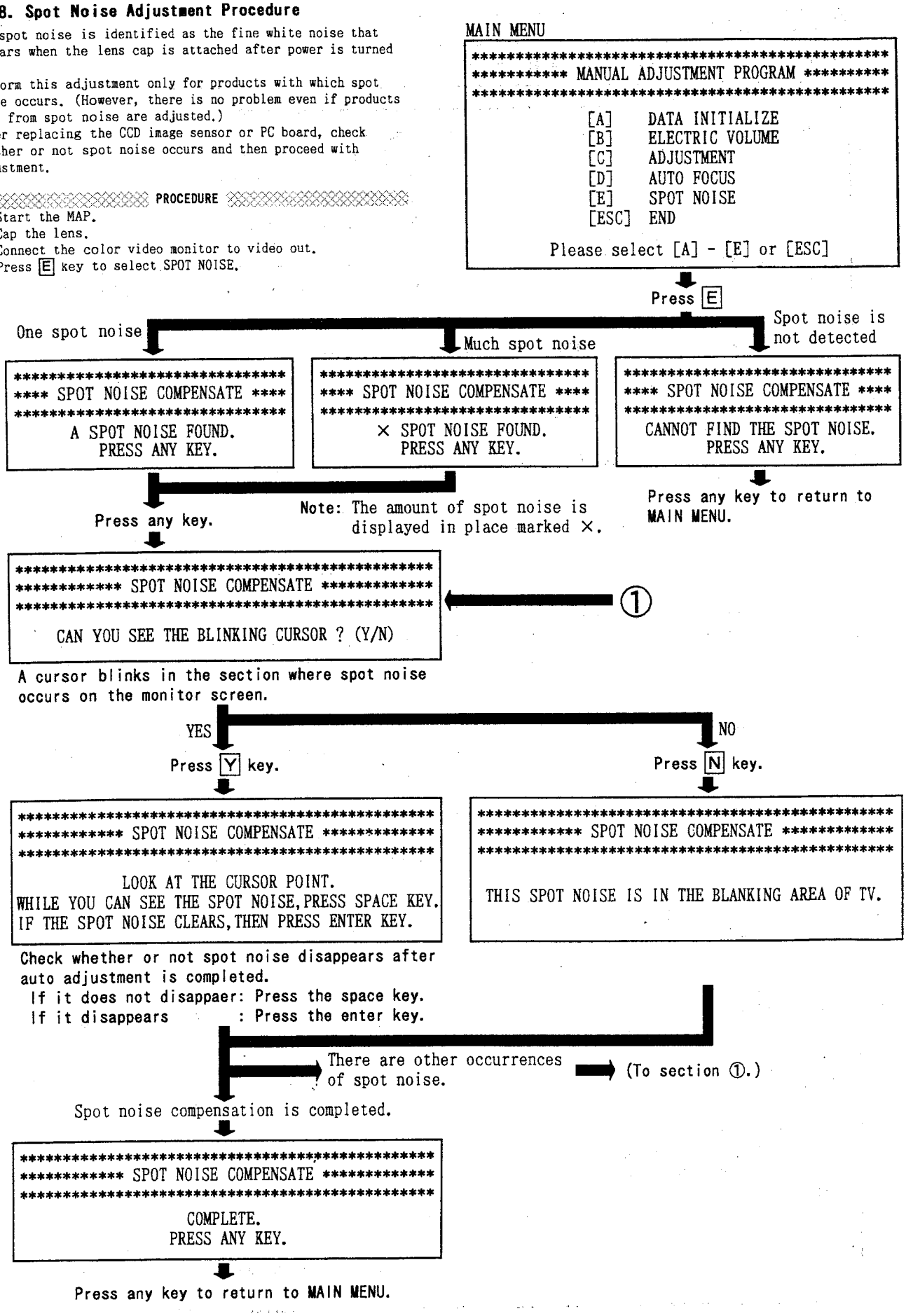
Return to AF ADJ. MENU.

●6-8. Spot Noise Adjustment Procedure

- The spot noise is identified as the fine white noise that appears when the lens cap is attached after power is turned off.
- Perform this adjustment only for products with which spot noise occurs. (However, there is no problem even if products free from spot noise are adjusted.)
- After replacing the CCD image sensor or PC board, check whether or not spot noise occurs and then proceed with adjustment.

PROCEDURE

1) Start the MAP.
2) Cap the lens.
3) Connect the color video monitor to video out.
4) Press [E] key to select SPOT NOISE.


MAIN MENU
********** MANUAL ADJUSTMENT PROGRAM **********
[A] DATA INITIALIZE
[B] ELECTRIC VOLUME
[C] ADJUSTMENT
[D] AUTO FOCUS
[E] SPOT NOISE
[ESC] END
Please select [A] - [E] or [ESC]
Press [E]
One spot noise
Much spot noise
Spot noise is not detected
**** SPOT NOISE COMPENSATE ****
A SPOT NOISE FOUND.
PRESS ANY KEY.
× SPOT NOISE FOUND.
PRESS ANY KEY.
CANNOT FIND THE SPOT NOISE.
PRESS ANY KEY.
Press any key to return to MAIN MENU.
Press any key.
Note: The amount of spot noise is displayed in place marked ×.
********** SPOT NOISE COMPENSATE **********
CAN YOU SEE THE BLINKING CURSOR ? (Y/N)
①
A cursor blinks in the section where spot noise occurs on the monitor screen.
YES
NO
Press [Y] key.
Press [N] key.
LOOK AT THE CURSOR POINT.
WHILE YOU CAN SEE THE SPOT NOISE, PRESS SPACE KEY.
IF THE SPOT NOISE CLEARS, THEN PRESS ENTER KEY.
THIS SPOT NOISE IS IN THE BLANKING AREA OF TV.
Check whether or not spot noise disappears after auto adjustment is completed.
If it does not disappaer: Press the space key.
If it disappears : Press the enter key.
There are other occurrences of spot noise.
(To section ①.)
Spot noise compensation is completed.
COMPLETE.
PRESS ANY KEY.
Press any key to return to MAIN MENU.

7 ERROR MESSAGES

(1) Camera Electric Volume and Digital Adjustments

Error Message	Countermeasure
ERROR OCCURRED. IRIS TROUBLE PRESS ANY KEY	• Check whether or not power is supplied. • Check the values of the iris drive circuit. • Defective soldering, damage to pattern, etc. in the above circuit • Check the iris block and replace it if necessary.
ERROR OCCURRED ON daX ADJUSTMENT PRESS ANY KEY	• Check the values in the hall amp circuit. • Defective soldering, damage to pattern, etc. in the above circuit.
D RANGE OVER. ERROR ON daX ADJUSTMENT PRESS ANY KEY	• Check the values in the hall amp circuit. • Defective soldering, damage to pattern, etc. in the above circuit.
ERROR OCCURRED ON da0 and da1 ADJUSTMENT PRESS ANY KEY	• Check the values in the hall amp circuit and its peripheral circuits. • Defective soldering, damage to pattern, etc. in the above circuits.
FILE NOT FOUND !!!! PRESS ANY KEY	• The adjustment program (file) cannot be found. • Check the adjustment floppy disk and replace it if necessary.
FILE OPEN ERROR !!!! PRESS ANY KEY	• The adjustment program (file) does not start. • Check the adjustment floppy disk and replace it if necessary.
ERROR OCCURRED ON C DUTY ADJUSTMENT PRESS ANY KEY	• Check the values of the iris drive circuit. • Defective soldering, damage to pattern, etc. in the above circuit.
ERROR OCCURRED ON FDET ADJUSTMENT PRESS ANY KEY	• Supply power again and re-adjust. • Check the values in the hall amp circuit. • Defective soldering, damage to pattern, etc. in the above circuit.
ERROR OCCURRED. ZOOM DOES NOT WORK PRESS ANY KEY	• Supply power again and re-adjust.
TOO BRIGHT PRESS ANY KEY	• The subject is too bright. • Move the camera further away from the light box.
TOO DARK PRESS ANY KEY	• The subject is too dark. • Check the light box. • Move the camera closer to the light box.
D RANGE OVER ERROR ON HALL AMP IRIS CANNOT OPEN ANY MORE PRESS ANY KEY	• Supply power again and re-adjust. • The subject is too dark. • Check the light box. • Move the camera closer to the light box. • Check the values in the hall amp circuit. • Defective soldering, damage to pattern, etc. in the above circuit.

Error Message	Countermeasure
STAURATION ERROR. TOO BRIGHT PRESS ANY KEY	• The subject is too bright. • Move the camera further away from the light box.
CAN'T ADJUST WHITE BALANCE PLEASE RETRY PRESS ANY KEY	• The subject is too bright or too dark. • Check the light box. • Move the camera closer to or away from the light box. • Supply power again and re-adjust.

(2) Autofocus Adjustment

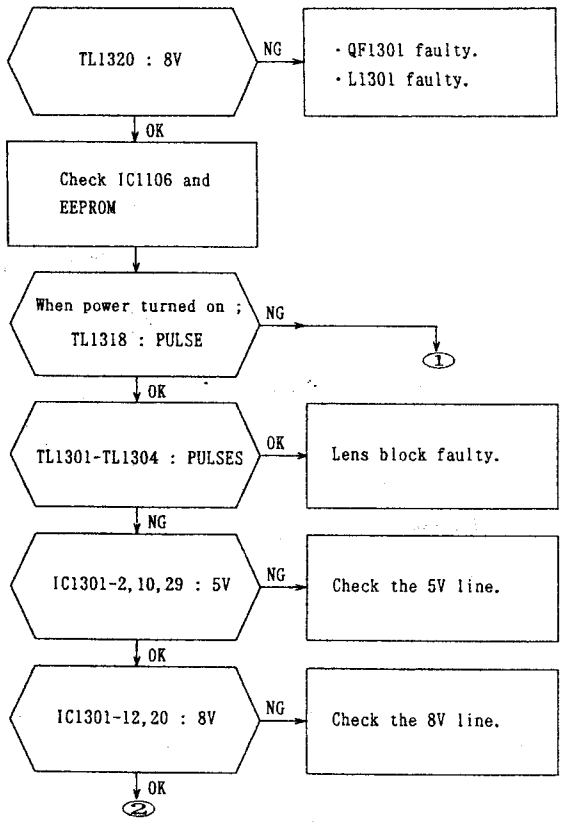
Error Message	Countermeasure
TIME OUT ERROR ON FOCUS	• Check the conditions of subject. • If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. • Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
TIME OUT ERROR ON ZOOM	• If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. • Refer to (2) of TROUBLESHOOTING OF AUTOFOCUS.
TIME OUT ERROR ON AF STEP	• Check the conditions of subject. • If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. • Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
AF LIMIT OVER	• Check the conditions of subject. • If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. • Refer to (2) of TROUBLESHOOTING OF AUTOFOCUS.
AF ERROR	• If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. • Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
TOO DARK	• Insufficient lighting. Check the subject.

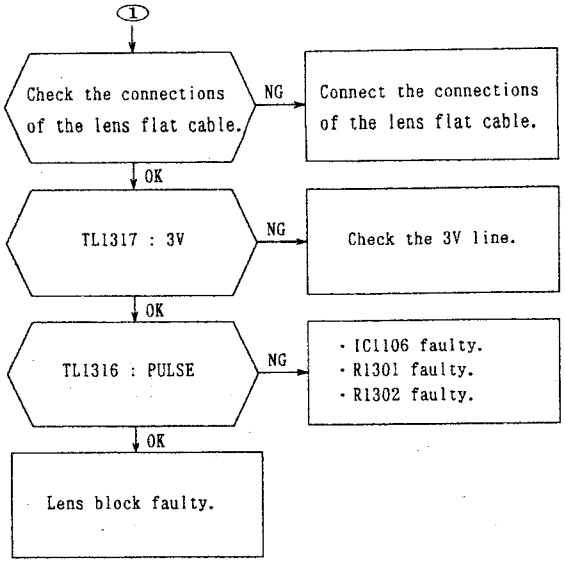
(3) Spot Noise Adjustment

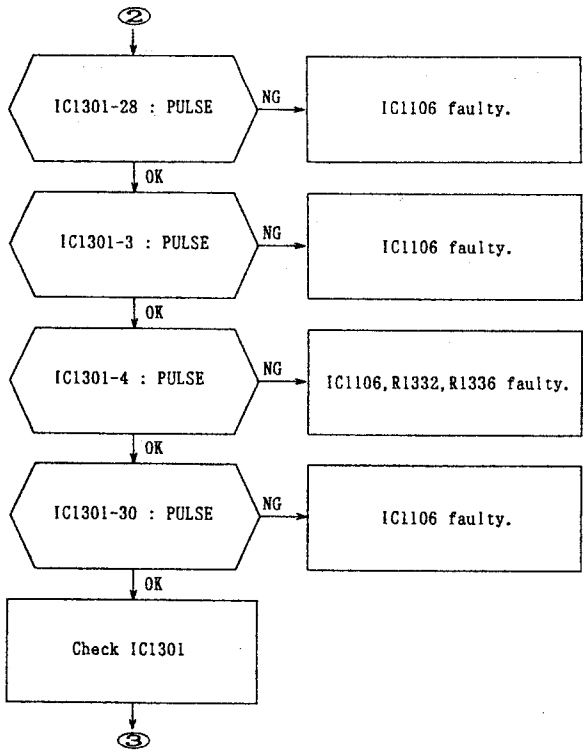
Error Message	Countermeasure
ERROR!! SPOT NOISE COMPENSATION IS STOPPED BY INITIAL DATA. PLEASE CHECK THE EEPROM. PRESS ANY KEY.	• Spot noise compensation is inhibited by the data in the EEPROM • Turn the power on again. • Data in the EEPROM is defective. (Initialize it.) • Check the EEPROM, and if necessary, replace it.
ERROR!! THRESHOLD DATA ERROR. PLEASE CHECK THE EEPROM. PRESS ANY KEY.	• Turn the power on again. • Data in the EEPROM is defective. (Initialize it.) • Check the EEPROM, and if necessary, replace it.

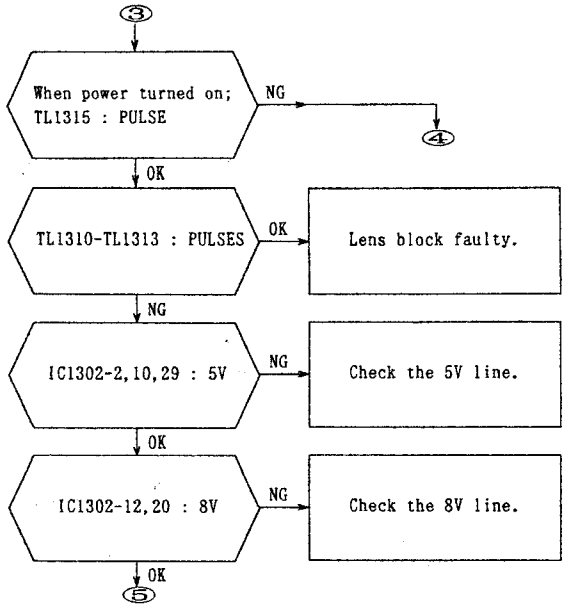
Error Message	Countermeasure
ERROR!! THE SPOT NOISE IS TOO MANY. CAN'T COMPENSATE ANY MORE. PRESS ANY KEY.	• The amount of spot noise that can be compensated reaches the limit. • Turn the power on again. • Check the CCD image sensor, and if necessary, replace it.

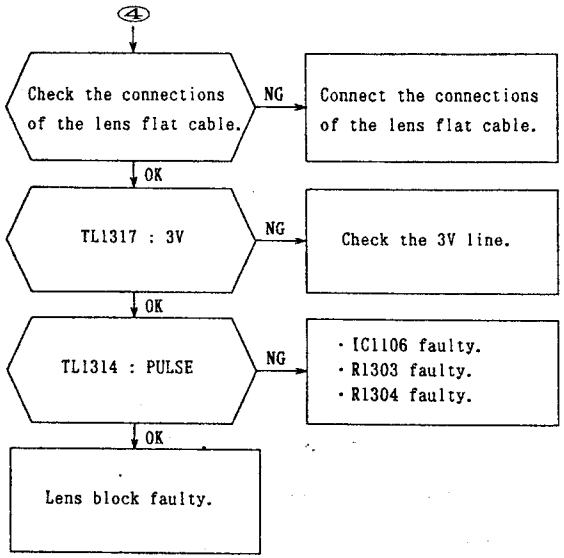
(1) NO ZOOM AND FOCUS OPERATION

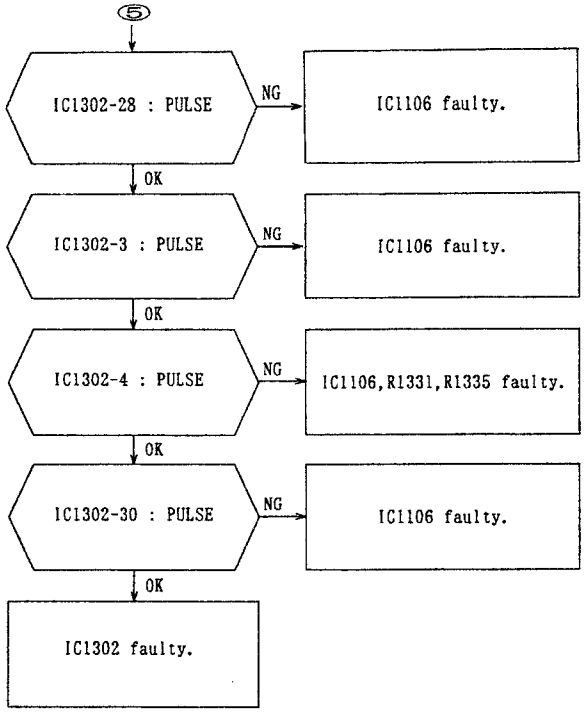




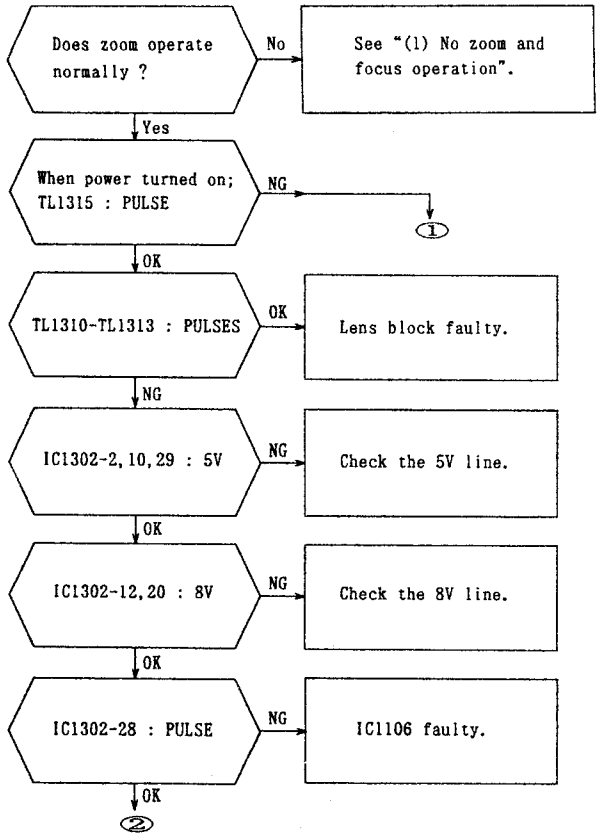

②
IC1301-28 : PULSE
NG
IC1106 faulty.
OK
IC1301-3 : PULSE
NG
IC1106 faulty.
OK
IC1301-4 : PULSE
NG
IC1106, R1332, R1336 faulty.
OK
IC1301-30 : PULSE
NG
IC1106 faulty.
OK
Check IC1301
③

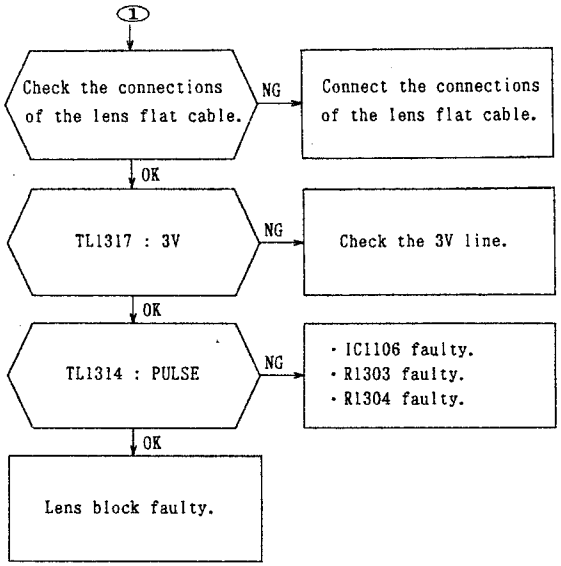

③
When power turned on;
TL1315 : PULSE
NG
④
OK
TL1310-TL1313 : PULSES
OK
Lens block faulty.
NG
IC1302-2, 10, 29 : 5V
NG
Check the 5V line.
OK
IC1302-12, 20 : 8V
NG
Check the 8V line.
OK
⑤

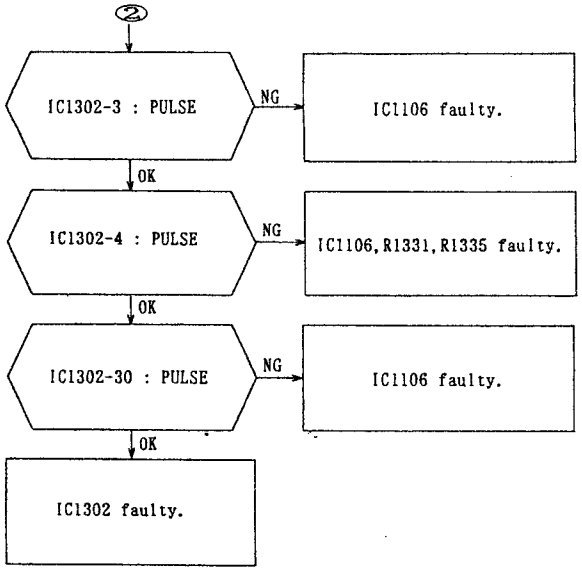

④
Check the connections of the lens flat cable.
NG
Connect the connections of the lens flat cable.
OK
TL1317 : 3V
NG
Check the 3V line.
OK
TL1314 : PULSE
NG
· IC1106 faulty.
· R1303 faulty.
· R1304 faulty.
OK
Lens block faulty.


⑤
IC1302-28 : PULSE
NG
IC1106 faulty.
OK
IC1302-3 : PULSE
NG
IC1106 faulty.
OK
IC1302-4 : PULSE
NG
IC1106,R1331,R1335 faulty.
OK
IC1302-30 : PULSE
NG
IC1106 faulty.
OK
IC1302 faulty.

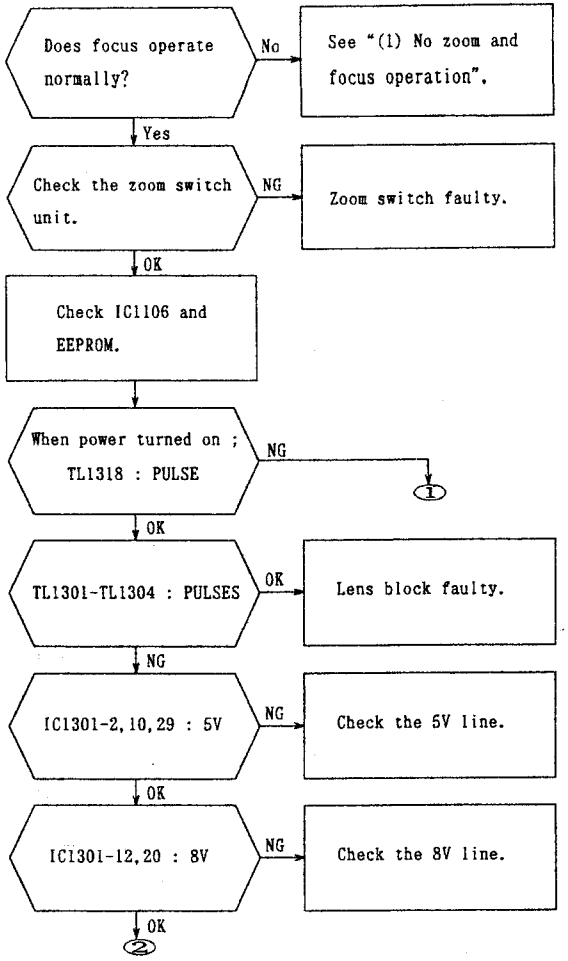
(2) NO FOCUS LENS OPERATION

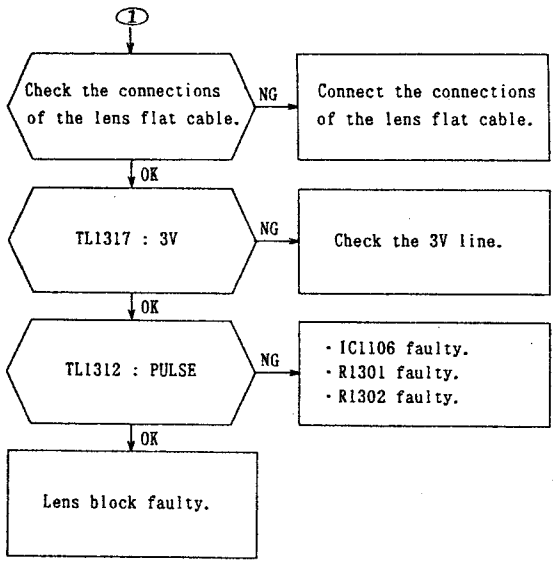


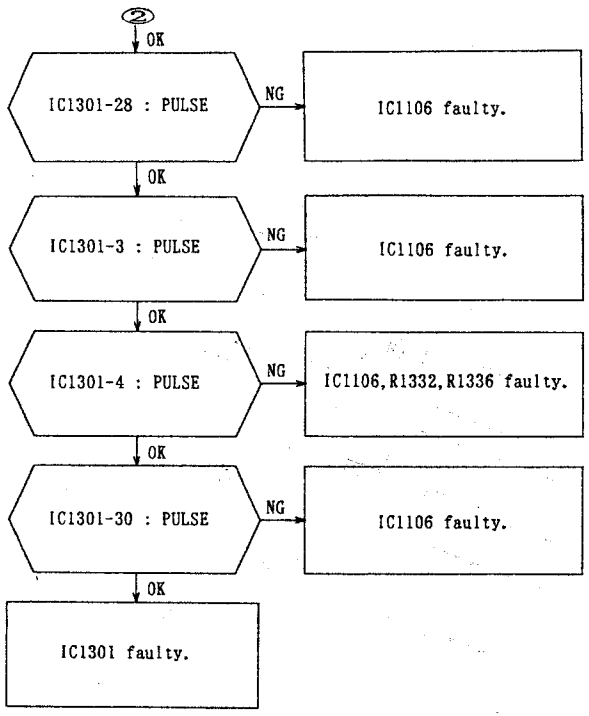




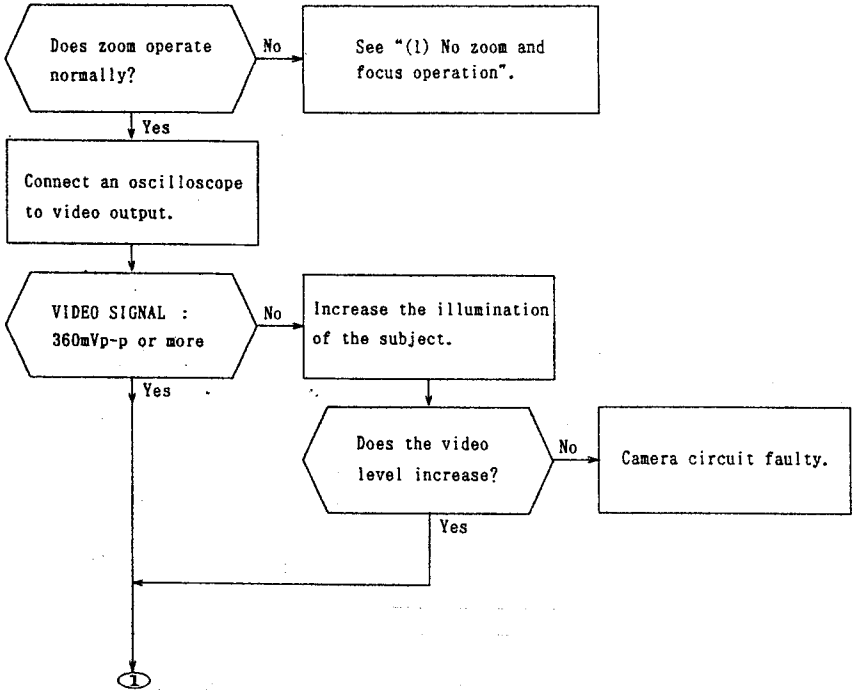
(3) NO ZOOM OPERATION

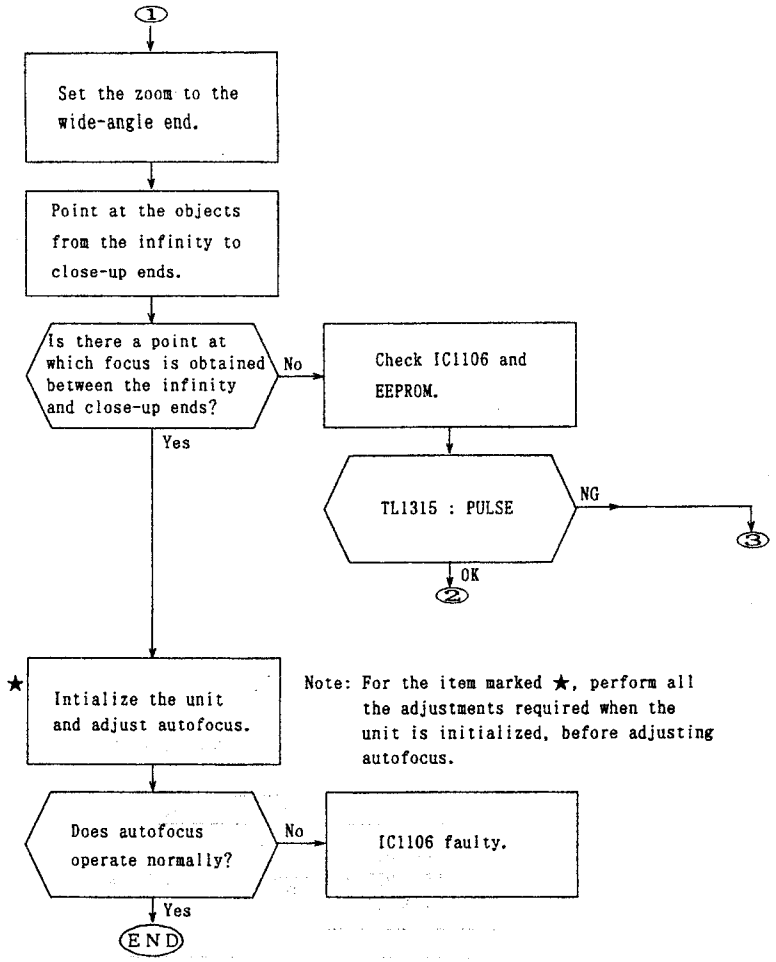


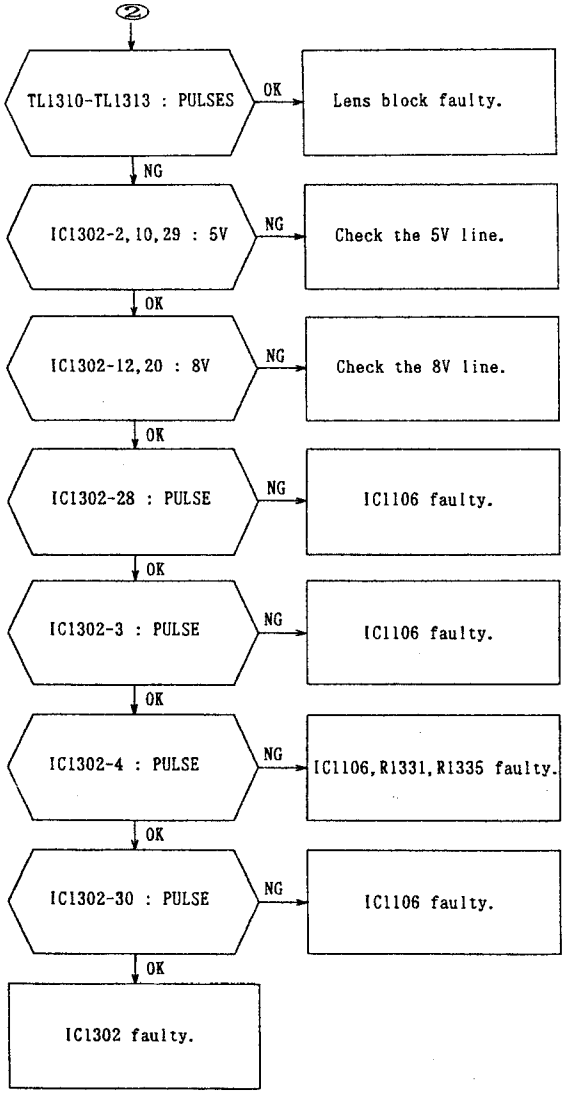

①
Check the connections of the lens flat cable.
NG
Connect the connections of the lens flat cable.
OK
TL1317 : 3V
NG
Check the 3V line.
OK
TL1312 : PULSE
NG
・IC1106 faulty.
・R1301 faulty.
・R1302 faulty.
OK
Lens block faulty.

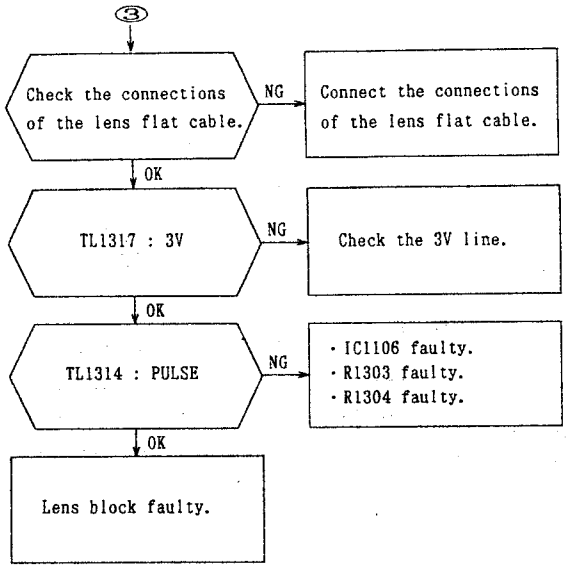

②
OK
IC1301-28 : PULSE
NG
IC1106 faulty.
OK
IC1301-3 : PULSE
NG
IC1106 faulty.
OK
IC1301-4 : PULSE
NG
IC1106,R1332,R1336 faulty.
OK
IC1301-30 : PULSE
NG
IC1106 faulty.
OK
IC1301 faulty.

(4) NO AUTOFOCUS OPERATION

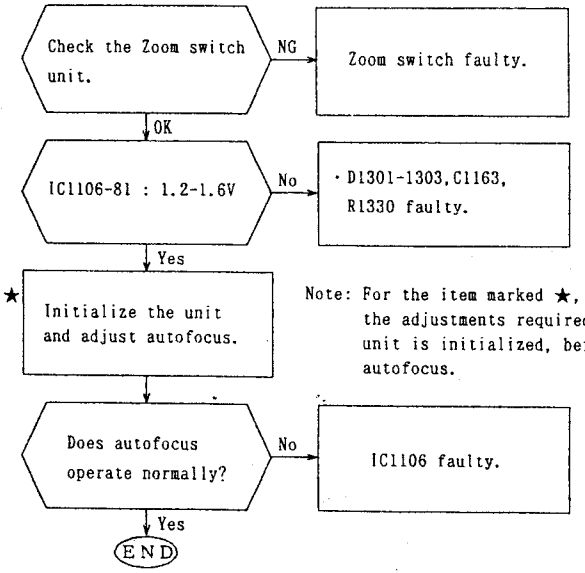



1
Set the zoom to the wide-angle end.
Point at the objects from the infinity to close-up ends.
Is there a point at which focus is obtained between the infinity and close-up ends?
No
Check IC1106 and EEPROM.
Yes
TL1315 : PULSE
NG
3
OK
2
★
Intialize the unit and adjust autofocus.
Note: For the item marked ★, perform all the adjustments required when the unit is initialized, before adjusting autofocus.
Does autofocus operate normally?
No
IC1106 faulty.
Yes
END


②
TL1310-TL1313 : PULSES
OK
Lens block faulty.
NG
IC1302-2,10,29 : 5V
NG
Check the 5V line.
OK
IC1302-12,20 : 8V
NG
Check the 8V line.
OK
IC1302-28 : PULSE
NG
IC1106 faulty.
OK
IC1302-3 : PULSE
NG
IC1106 faulty.
OK
IC1302-4 : PULSE
NG
IC1106,R1331,R1335 faulty.
OK
IC1302-30 : PULSE
NG
IC1106 faulty.
OK
IC1302 faulty.

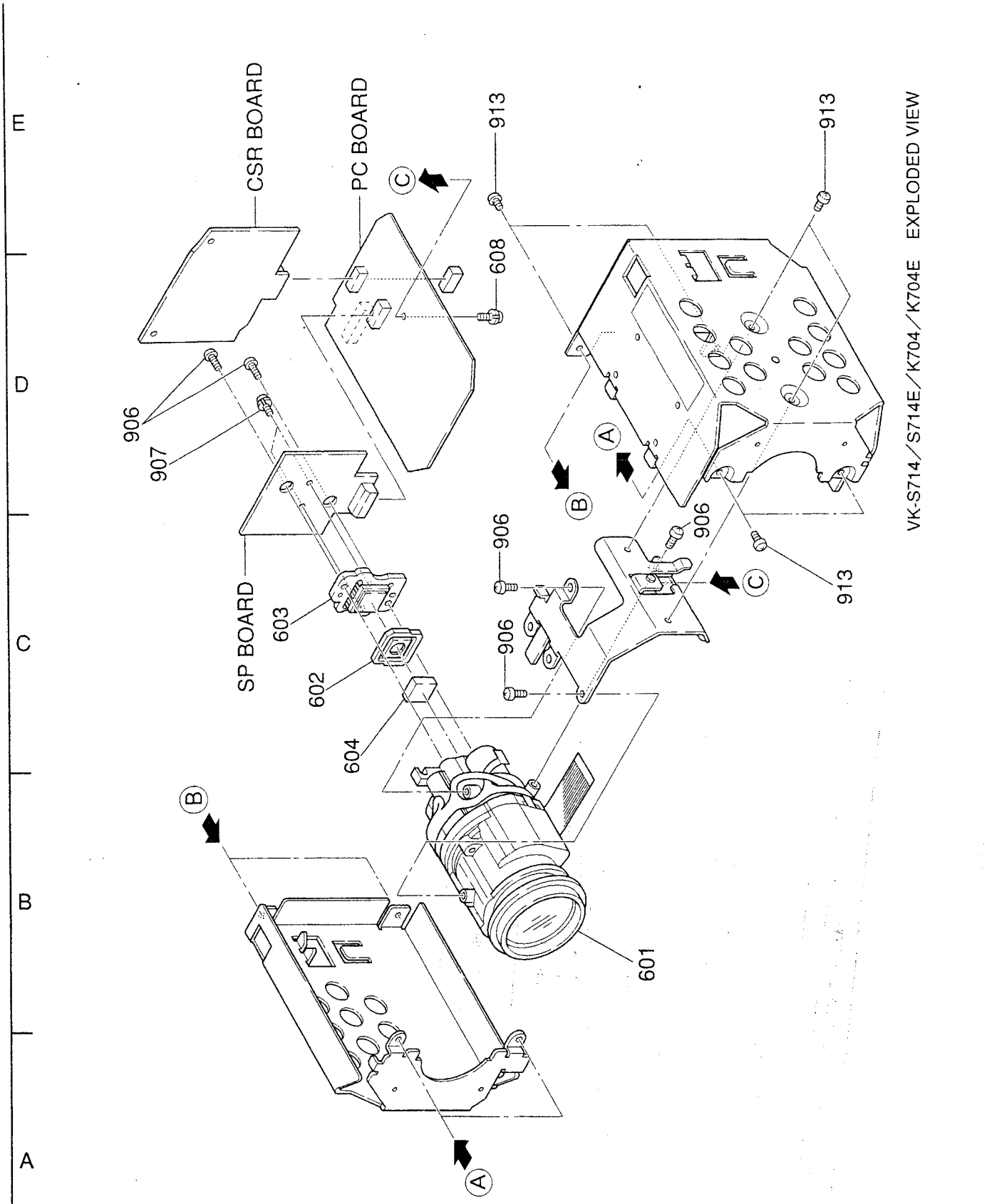

③
Check the connections of the lens flat cable.
NG
Connect the connections of the lens flat cable.
OK
TL1317 : 3V
NG
Check the 3V line.
OK
TL1314 : PULSE
NG
· IC1106 faulty.
· R1303 faulty.
· R1304 faulty.
OK
Lens block faulty.

(5) SUBJECT IS GREATLY OUT-OF-FOCUS WHEN ZOOMED.



Note: For the item marked ★, perform all the adjustments required when the unit is initialized, before adjusting autofocus.

CHAPTER 4 EXPLODED VIEW



VK-S714/S714E/K704/K704E EXPLODED VIEW

CHAPTER 5 REPLACEMENT PARTS LIST

1. MECHANICAL PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION	
		FOR FINAL ASSEMBLY	
601	KQ10451	LENS,ZOOM	
602	NX11251	RUBBER	
603	UE11253	CCD IMAGE SENSOR ASSY	[S714]
603	UE11254	CCD IMAGE SENSOR ASSY	[S714E]
603	UE11782	CCD IMAGE SENSOR ASSY	[K704]
603	UE11783	CCD IMAGE SENSOR ASSY	[K704E]
604	DT10151	CRYSTAL	[S714/S714E]
604	DT10181	CRYSTAL	[K704/K704E]
906	7775945	SCREW(2X5)	
907	8650103	SCREW(2X3)	
908	8650105	SCREW (2X5)	
913	7775963	SCREW(2X3)	

2. ELECTRICAL PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION
		CAPACITORS
C1002	AD10136R	ELECTROLYTIC 47UF 16V
C1003	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1005	AD10124R	ELECTROLYTIC 33UF 10V
C1006	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1101	0893117	CERAMIC CHIP 22PF+-5% 50V
C1102	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1103	0893055	CERAMIC CHIP 0.1UF+80-20% 16V
C1104	0806018	ELECTROLYTIC 2.2UF 6.3V
C1106	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C1107	AD10135R	ELECTROLYTIC 47UF 6.3V
C1108	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1109	AD10136R	ELECTROLYTIC 47UF 16V
C1110	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C1111	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1112	AD10135R	ELECTROLYTIC 47UF 6.3V
C1113	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1114	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1115	AD10123R	ELECTROLYTIC 22UF 6.3V
C1116	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1117	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1118	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1119	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1120	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1121	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1122	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1124	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1125	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1126	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1127	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1128	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C1129	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C1130	0893113	CERAMIC CHIP 10PF+-0.5% 50V [S714/S714E]
C1130	0893126	CERAMIC CHIP 100PF+-5% 50V [K704/K704E]
C1131	0893113	CERAMIC CHIP 10PF+-0.5% 50V [S714/S714E]
C1131	0893126	CERAMIC CHIP 100PF+-5% 50V [K704/K704E]
C1133	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1134	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1135	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1136	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1137	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1138	0893114	CERAMIC CHIP 12PF+-5% 50V [S714E]
C1138	0893117	CERAMIC CHIP 22PF+-5% 50V [S714]
C1139	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1140	0893225	CERAMIC CHIP 0.1UF+80-20% 16V [S714/S714E]
C1141	AD10136R	ELECTROLYTIC 47UF 16V
C1142	0893239	CERAMIC CHIP 0.01UF+80-20% 50V [K704/K704E]
C1143	AD10135R	ELECTROLYTIC 47UF 6.3V
C1144	0893118	CERAMIC CHIP 27PF+-5% 50V [S714E]
C1144	0893121	CERAMIC CHIP 39PF+-5% 50V [S714]
C1147	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1148	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1149	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1150	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1151	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1152	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1153	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C1154	0893186	CERAMIC CHIP 0.033UF+-10% 16V
C1155	0893225	CERAMIC CHIP 0.1UF+80-20% 16V [K704/K704E]
C1156	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1158	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1159	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1160	0893193	CERAMIC CHIP 0.01UF+-10% 25V

SYMBOL-NO	P-NO	DESCRIPTION
C1162	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1163	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1166	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1167	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1169	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1173	0806027	ELECTROLYTIC 4.7UF 4V
C1174	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1175	0893121	CERAMIC CHIP 39PF+-5% 50V [S714/S714E]
C1176	0202319	CERAMIC CHIP 22PF+-2% 50V [S714/S714E]
C1177	0893122	CERAMIC CHIP 47PF+-5% 50V [S714/S714E]
C1178	0893225	CERAMIC CHIP 0.1UF+80-20% 16V [S714/S714E]
C1179	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1180	0893123	CERAMIC CHIP 56PF+-5% 50V
C1182	0893123	CERAMIC CHIP 56PF+-5% 50V
C1186	0893123	CERAMIC CHIP 56PF+-5% 50V
C1187	0893122	CERAMIC CHIP 47PF+-5% 50V
C1189	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1191	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1193	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C1194	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1195	0893118	CERAMIC CHIP 27PF+-5% 50V
C1196	0893175	CERAMIC CHIP 1000PF+-5% 50V [S714/S714E]
C1197	0893175	CERAMIC CHIP 1000PF+-5% 50V
C1198	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1199	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1201	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1202	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1203	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1204	0893132	CERAMIC CHIP 270PF+-5% 50V
C1205	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1206	0893007	CERAMIC CHIP 0.082UF+-10% 16V
C1207	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C1208	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C1209	0893133	CERAMIC CHIP 330PF+-5% 50V
C1210	0893133	CERAMIC CHIP 330PF+-5% 50V
C1211	0893133	CERAMIC CHIP 330PF+-5% 50V
C1212	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C1301	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1302	0893215	CERAMIC CHIP 3300PF+-10% 50V
C1303	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1304	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1305	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1306	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1307	0893215	CERAMIC CHIP 3300PF+-10% 50V
C1308	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1309	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1310	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1311	AD10136R	ELECTROLYTIC 47UF 16V
C1312	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1313	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1317	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1318	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1319	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1320	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1501	0206671	ELECTROLYTIC 10UF 10V
C1502	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1503	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1504	0206673	ELECTROLYTIC 33UF 6.3V
C1505	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1506	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1507	0206671	ELECTROLYTIC 10UF 10V
C1508	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1509	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1510	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1511	0893062	CERAMIC CHIP 1UF+80-20% 16V

SYMBOL-NO	P-NO	DESCRIPTION
C1512	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1513	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1514	0893119	CERAMIC CHIP 33PF+-5% 50V
C1515	0893119	CERAMIC CHIP 33PF+-5% 50V
C1517	0893208	CERAMIC CHIP 1000PF+-10% 50V
C1518	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1519	0893133	CERAMIC CHIP 330PF+-5% 50V
C1520	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1522	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1523	0893202	CERAMIC CHIP 330PF+-10% 50V
C1524	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
C1525	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1551	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1552	0893225	CERAMIC CHIP 0.1UF+80-20% 16V [K704/K704E]
C1553	0893133	CERAMIC CHIP 330PF+-5% 50V [S714/S714E]
C1554	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1555	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1556	AD10126R	ELECTROLYTIC 100UF 6.3V
C1557	0806018	ELECTROLYTIC 2.2UF 6.3V
C1558	AD10126R	ELECTROLYTIC 100UF 6.3V
C1559	AD10121R	ELECTROLYTIC 10UF 16V
C1581	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1582	0893011	CERAMIC CHIP 0.15UF+-10% 16V
C1583	0893225	CERAMIC CHIP 0.1UF+80-20% 16V

RESISTORS

R1001	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R1002	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1003	0790015	CHIP RESISTOR 22 OHM+-5% 1/16W
R1004	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1005	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1102	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1103	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1105	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1106	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1107	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R1108	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R1109	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R1110	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R1113	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1114	0104537	CHIP RESISTOR 3.6KOHM+-1% 1/16W [K704]
R1114	0105661	CHIP RESISTOR 4.3KOHM+-1% 1/16W [S714/S714E/K704E]
R1115	0104543	CHIP RESISTOR 68KOHM+-1% 1/16W [S714/S714E]
R1115	0104562	CHIP RESISTOR 39KOHM+-1% 1/16W [K704E]
R1116	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W [S714/S714E]
R1117	0105678	CHIP RESISTOR 3.3KOHM+-1% 1/16W [S714E]
R1117	0105688	CHIP RESISTOR 2.2KOHM+-1% 1/16W [S714]
R1118	0104571	CHIP RESISTOR 3.9KOHM+-1% 1/16W [S714E]
R1118	0105681	CHIP RESISTOR 2.7KOHM+-1% 1/16W [S714]
R1119	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W [S714/S714E]
R1120	0104545	CHIP RESISTOR 1.24KOHM+-1% 1/16W
R1121	0104539	CHIP RESISTOR 6.2KOHM+-1% 1/16W [S714/K704]
R1121	0104549	CHIP RESISTOR 5.36KOHM+-1% 1/16W [S714E/K704E]
R1122	0104562	CHIP RESISTOR 39KOHM+-1% 1/16W [S714/K704]
R1123	0104554	CHIP RESISTOR 1KOHM+-1% 1/16W
R1124	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1125	0104559	CHIP RESISTOR 4.7KOHM+-1% 1/16W
R1126	0104533	CHIP RESISTOR 1.5KOHM+-1% 1/16W
R1128	0104558	CHIP RESISTOR 5.6KOHM+-1% 1/16W [S714/S714E]
R1129	0104554	CHIP RESISTOR 1KOHM+-1% 1/16W [S714/S714E]
R1132	0105681	CHIP RESISTOR 2.7KOHM+-1% 1/16W
R1133	0104552	CHIP RESISTOR 6.8KOHM+-1% 1/16W
R1136	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W [K704/K704E]
R1137	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W [K704/K704E]

SYMBOL-NO	P-NO	DESCRIPTION
R1138	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W [K704/K704E]
R1139	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1140	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1141	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1142	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R1143	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1145	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1146	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1149	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1153	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R1158	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1159	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1160	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1161	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1162	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1163	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R1168	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1170	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W [S714/S714E]
R1171	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W [S714/S714E]
R1176	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1178	0790073	CHIP RESISTOR 470KOHM+-5% 1/16W
R1181	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R1182	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R1183	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1185	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R1187	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R1191	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1192	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1201	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R1202	0790069	CHIP RESISTOR 0.27MOHM+-5% 1/16W
R1203	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1204	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1205	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1206	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1207	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1208	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1209	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1210	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1211	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1212	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1213	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1214	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1215	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1216	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1217	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1218	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1220	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R1221	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R1222	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1224	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R1301	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1302	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1303	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1304	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1306	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W
R1308	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1309	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1310	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W
R1313	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W
R1315	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1316	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1317	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W
R1322	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1323	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1329	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1330	0104518	CHIP RESISTOR 2.87KOHM+-1% 1/16W
R1331	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1332	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1335	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1336	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1501	0105196	CHIP RESISTOR 6.8KOHM+-0.5% 1/16W
R1502	0105197	CHIP RESISTOR 22KOHM+-0.5% 1/16W
R1503	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1504	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1506	0790026	CHIP RESISTOR 150 OHM+-5% 1/16W
R1507	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R1508	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R1510	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1511	0790026	CHIP RESISTOR 150 OHM+-5% 1/16W
R1512	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R1513	0104543	CHIP RESISTOR 68KOHM+-1% 1/16W
R1514	0104503	CHIP RESISTOR 27KOHM+-1% 1/16W
R1515	0105196	CHIP RESISTOR 6.8KOHM+-0.5% 1/16W
R1516	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1517	0104543	CHIP RESISTOR 68KOHM+-1% 1/16W
R1518	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1519	0105196	CHIP RESISTOR 6.8KOHM+-1% 1/16W
R1520	0105196	CHIP RESISTOR 6.8KOHM+-0.5% 1/16W
R1521	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R1522	0104727	CHIP RESISTOR 15KOHM+-0.5% 1/16W
R1523	0105197	CHIP RESISTOR 22KOHM+-0.5% 1/16W
R1524	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1525	0790072	CHIP RESISTOR 390KOHM+-5% 1/16W
R1552	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1554	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1556	0103829	CHIP RESISTOR 68 OHM+-5% 0.1W
R1582	0790073	CHIP RESISTOR 470KOHM+-5% 1/16W
R1583	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1584	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W

SEMI-CONDUCTORS

D1001	5337351	DIODE MA132WK	
D1101	5337372	DIODE SB07-03C	
D1102	5337351	DIODE MA132WK	
D1103	5337351	DIODE MA132WK	
D1104	5337391	DIODE D1FS4	
D1105	5337352	DIODE MA132WA	
D1106	5337471	DIODE KV1470	
D1301	5337422	DIODE DA221	
D1302	5337422	DIODE DA221	
D1303	5337422	DIODE DA221	
D1501	5337351	DIODE MA132WK	
D1502	5337351	DIODE MA132WK	
IC1101	1366681	IC HA118184F	
IC1102	1365392	IC HD49319AF	
IC1103	CK12132U	IC HG51CS035TEA	
IC1104	CK12061R	IC UPD16510GR	
IC1105	5363182	IC UPC358G2	[K704/K704E]
IC1106	CK15241U	IC HD6433042T19F	
IC1107	CK14171R	IC MX25S67MR	
IC1108	1365592	IC RN5VT28AA-TL	
IC1109	1366081	IC HD74HCT125T	
IC1112	1354381	IC TC7SU04F	[S714/S714E]
IC1113	1354381	IC TC7SU04F	
IC1114	5305831	IC TC7S08	
IC1115	5301131	IC UPD74HC00G	
IC1116	1354381	IC TC7SU04F	
IC1201	CK13791R	IC UPC5023GS-105-E1	
IC1301	1366804	IC MPC17AT85VMEL	

SYMBOL-NO	P-NO	DESCRIPTION	
IC1302	1366804	IC MPC17AT85VMEL	
IC1501	CK10541	IC BA9706K	
IC1502	1308011	TRANSISTOR MPL1	
IC1503	1308011	TRANSISTOR MPL1	
IC1551	1351492	IC MM1029AF	
IC1581	5362121	IC TC5081AP	
Q1001	5328221	TRANSISTOR 2SC2620-QC	
Q1101	1323231	TRANSISTOR 2SB1462	
Q1102	5328192	TRANSISTOR 2SC2462LD	[S714/S714E]
Q1103	5328192	TRANSISTOR 2SC2462LD	
Q1104	1323231	TRANSISTOR 2SB1462	[S714/S714E]
Q1105	1323231	TRANSISTOR 2SB1462	
Q1106	1323081	TRANSISTOR 2SA1036K	
Q1107	1323271	TRANSISTOR DTC144EE	
Q1108	1323273	TRANSISTOR DTA143EE	
Q1201	5328192	TRANSISTOR 2SC2462LD	
Q1202	1323141	TRANSISTOR 2SC2411K	
Q1501	5326502	TRANSISTOR 2SD1766 (R)	
Q1502	1323272	TRANSISTOR DTA144EE	
Q1581	1323271	TRANSISTOR DTC144EE	
ZD1101	5328669	DIODE MA3030L	
ZD1501	5328669	DIODE MA3030L	
		TRANSFORMER	
T1501	5148334	TRANS	
		COILS	
L1101	0773087	CHOKE COIL 10UH+-10%	
L1102	0773087	CHOKE COIL 10UH+-10%	
L1106	0773094	CHOKE COIL 100UH+-10%	[S714/S714E]
L1109	0773087	CHOKE COIL 10UH+-10%	
L1110	0773087	CHOKE COIL 10UH+-10%	
L1301	0773091	CHOKE COIL 33UH	
L1302	0773087	CHOKE COIL 10UH+-10%	
L1501	BA10128R	COIL 22UH	
L1502	BA10129R	COIL 47UH	
L1503	BA10129R	COIL 47UH	
L1504	0773094	CHOKE COIL 100UH+-10%	
L1505	0773094	CHOKE COIL 100UH+-10%	
L1506	0773087	CHOKE COIL 10UH+-10%	
L1507	0773087	CHOKE COIL 10UH+-10%	
		CRYSTALS	
X1101	5778792	CRYSTAL	[S714/S714E]
X1102	1930093	CRYSTAL	[S714E/K704E]
X1102	1930094	CRYSTAL	[S714/K704]
		MISCELLANEOUS	
BL1111	BE10132R	FILTER,LOW PASS	
BL1501	5172541	FILTER	
CP1101	BE10222R	FILTER,LC	[S714/S714E]
CP1101	BE10223R	FILTER,LC	[K704/K704E]
CP1102	BV10211R	FILTER	
CP1103	5172646	FILTER	
⚠ F1101	5723235	FUSE 1A	
PG1001	EA10291R	PLUG	
PG1101	EA10292R	PLUG	
PG1102	5666914	MINI PLUG	
PG1103	1830116	CONNECTOR	
PG1301	EA10377R	PLUG	
PG1501	1830115	CONNECTOR	

SYMBOL-NO	P-NO	DESCRIPTION
⚠ QF1301	FM10112R	FUSE 0.2A

CHAPTER 6 SCHEMATIC AND CIRCUIT BOARD DIAGRAMS

Applied Models: VK-S714
VK-S714E
VK-K704
VK-K704E

Cautions when using schematic diagrams

Caution for safety
The parts marked ⚠ are critical for safety. Be sure to use the specified parts to ensure safety when replacing them.

1. Values in schematic diagrams
The values, dielectric strength (power capacitance) and tolerances of the resistors (excluding variable resistors) and capacitors are indicated in the schematic diagrams using abbreviations.

[Resistors]

Item	Indication
Value	No indication ····· Ω K ····· kΩ M ····· MΩ
Tolerance	No indication ····· ±5% (All tolerances other than ±5% are indicated in the schematic diagrams)
Power capacitance	No indication ····· 1/8W (1/16W for leadless resistors without indication) All capacitances other than the above are indicated in the schematic diagrams.

[Capacitors]

Item	Indication
Value	No indication ····· μF P ····· pF
Dielectric strengh	No indication ····· 50V (All dielectric strengths other than 50V are indicated in the schematic diagrams.)

[Coils]

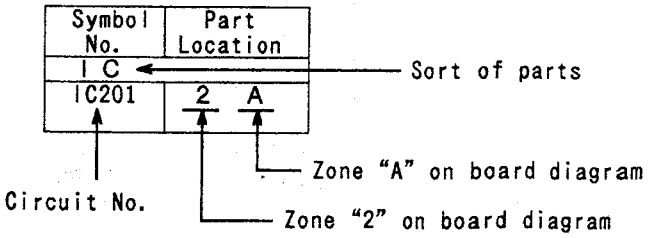
Item	Indication
Value	μ ····· μH m ····· mH

Cautions when using circuit board diagrams

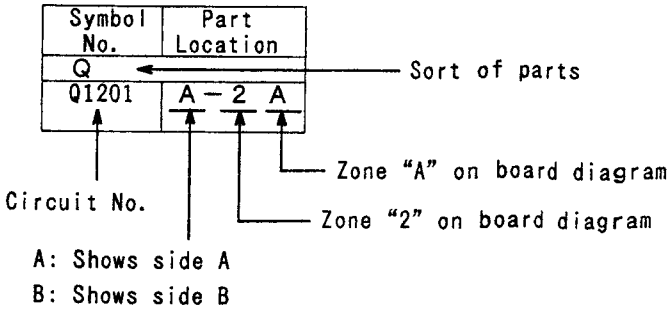
1. Identifications of sides A/B in circuit board diagrams
(1) Board having a pattern on one side and parts on both sides.
Side A: Shows discrete parts, viewed from the pattern side.
Side B: Shows leadless parts, viewed from the pattern side.
(2) Board having patterns on both sides and parts on both sides.
Side A: Shows parts and patterns which can be seen when the case is opened.
Side B: Shows parts and the pattern on the back of side A.

2. Table for indexing locations of parts
This table shows locations of each part on the circuit board diagrams. The locations are indicated using the guide scales on the external lines of diagrams.

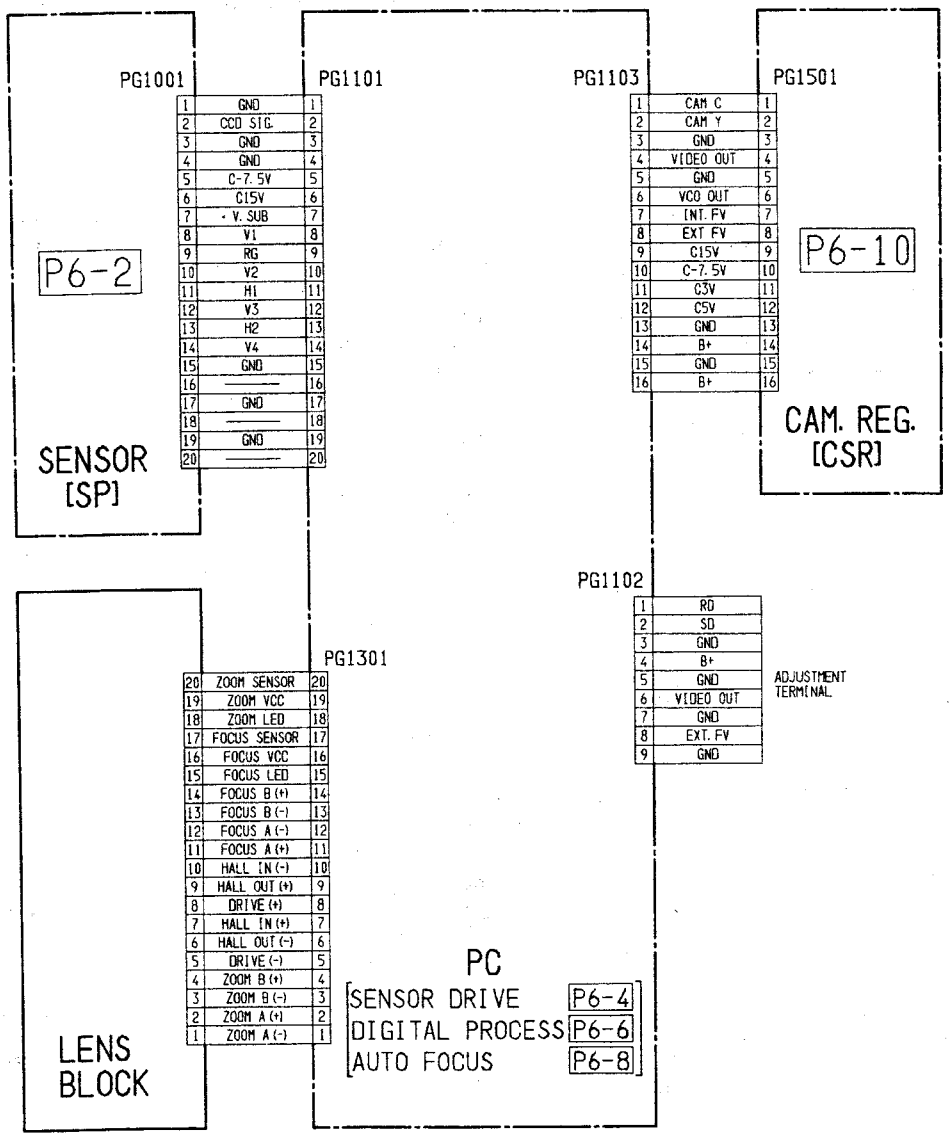
(1) In case of one-layer board



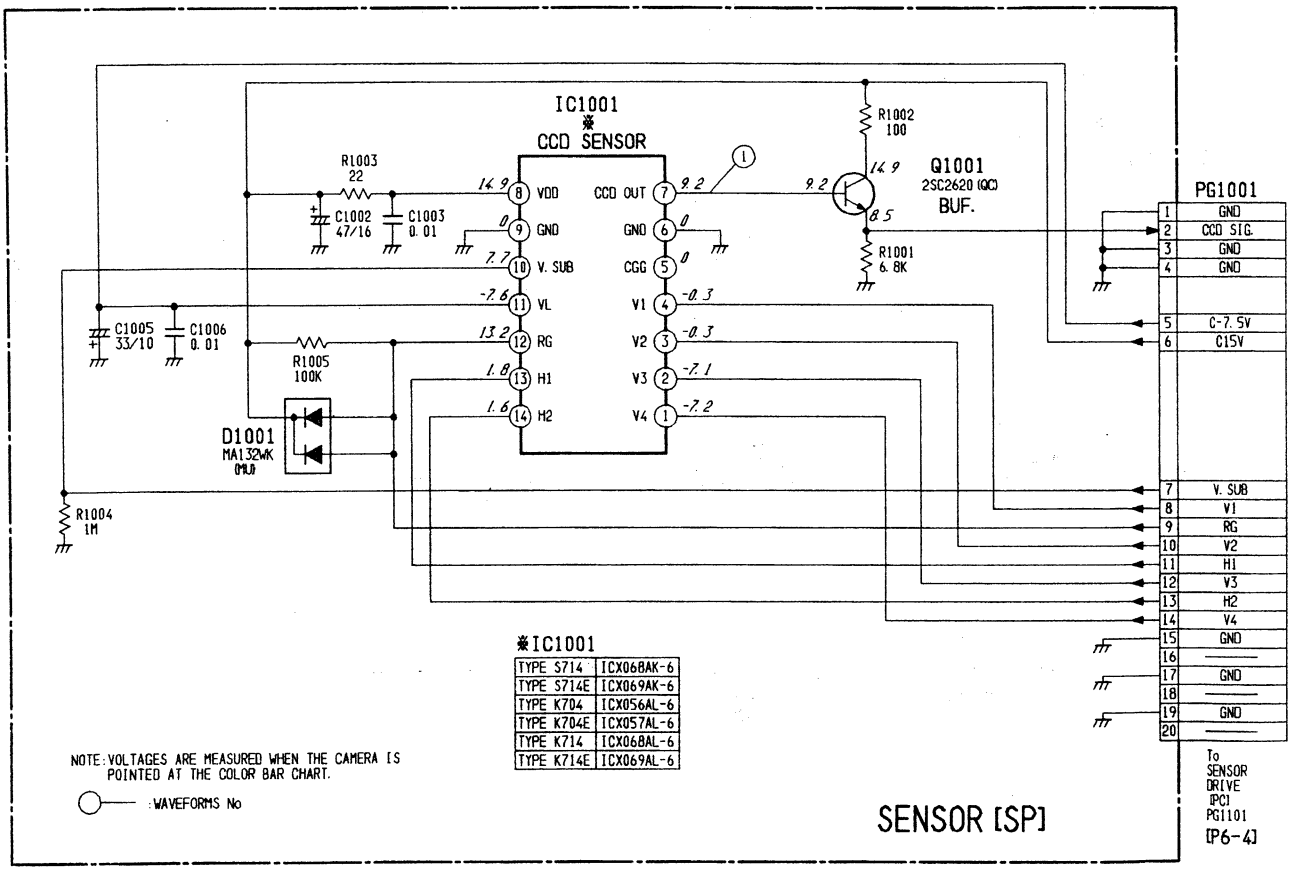
(2) In case of side A/B indication board



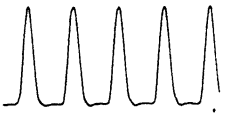
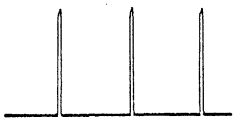
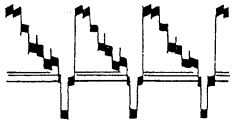
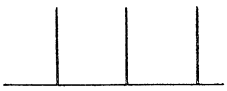
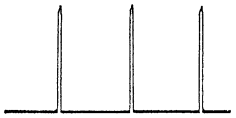
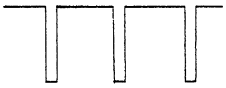
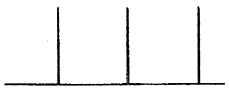
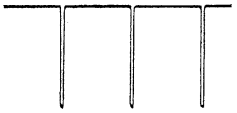
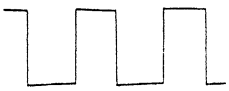
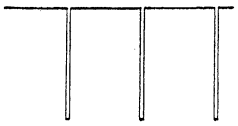
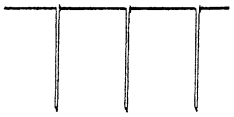
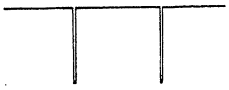
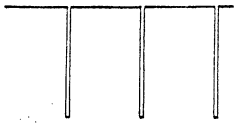
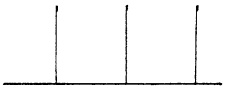
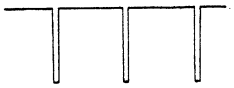
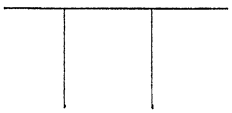
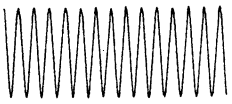
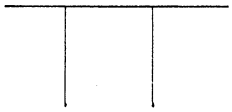
INTERNAL WIRING DIAGRAM



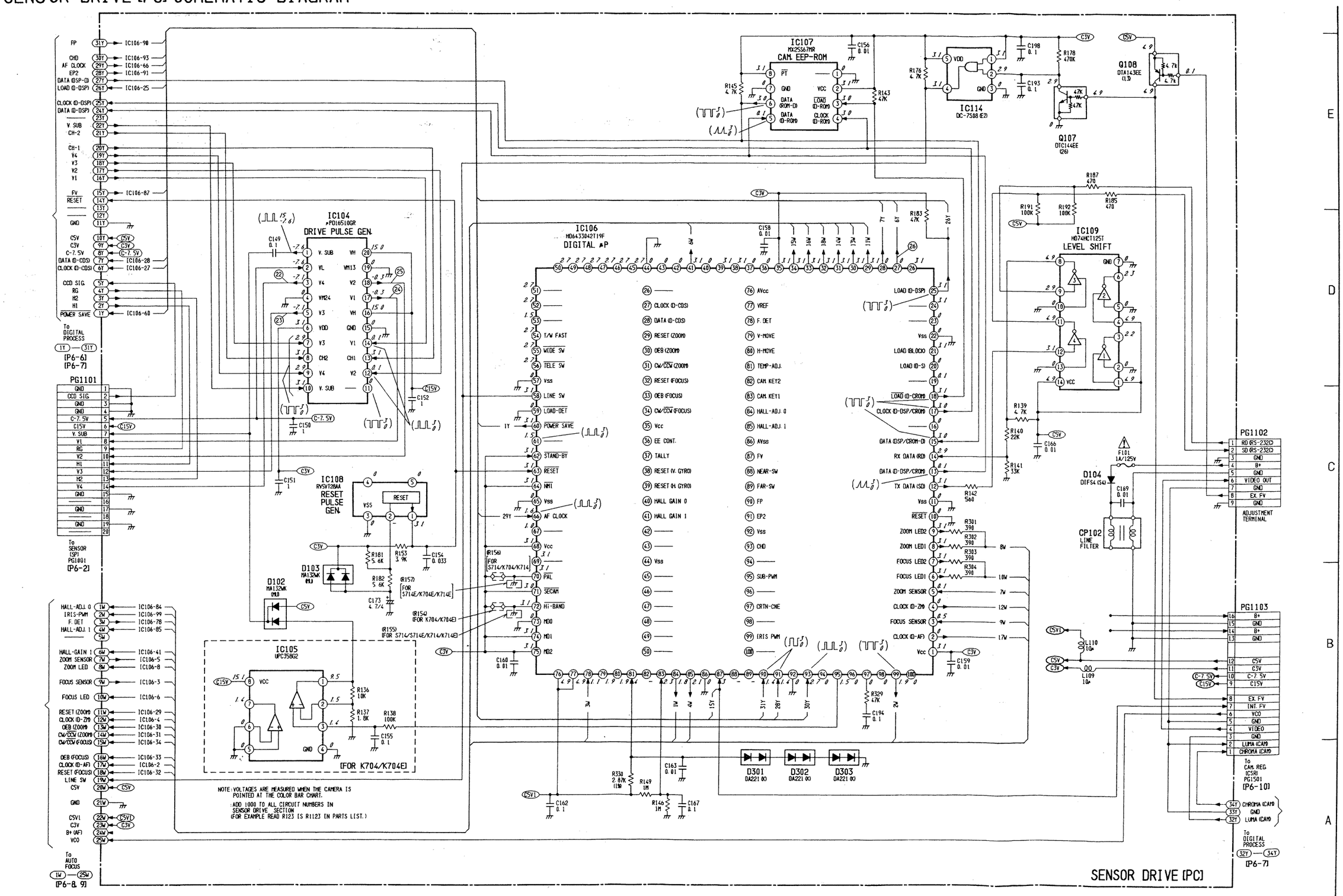
SENSOR [SP] SCHEMATIC DIAGRAM



WAVEFORMS

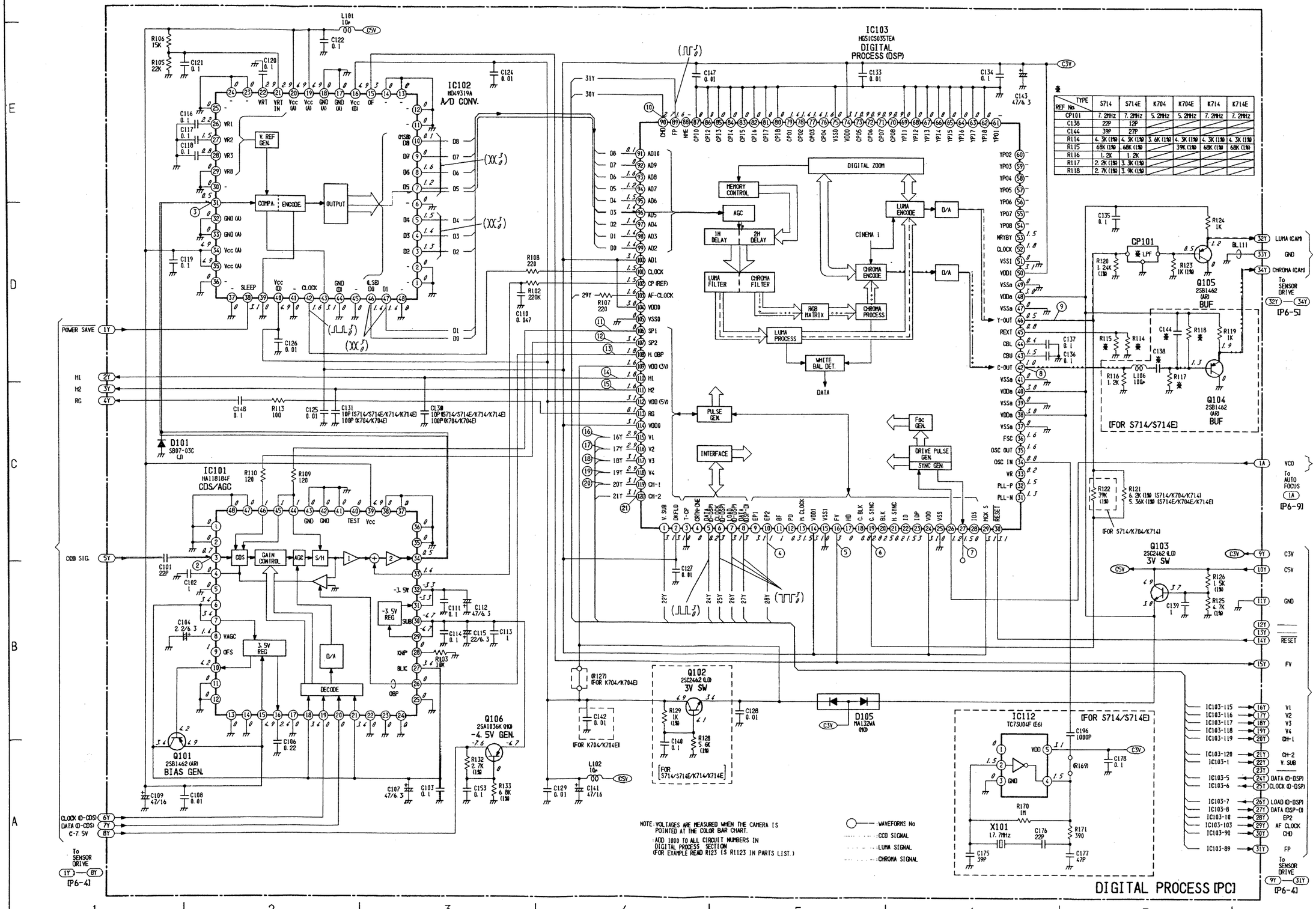
1-A IC1001-7 700mVp-p 0.2V/20.0 μ sec. cm COLOR CHART	8-A IC1103-42 730mVp-p 0.2V/20.0 μ sec. cm COLOR CHART	15-A IC1103-111 6.0Vp-p 2V/100nsec. cm COLOR CHART	22-A IC1104-3 8.0Vp-p 2V/20.0 μ sec. cm COLOR CHART
			
2-A IC1101-3 400mVp-p 0.2V/20.0 μ sec. cm COLOR CHART	9-A IC1103-46 1.0Vp-p 0.2V/20.0 μ sec. cm COLOR CHART	16-A IC1103-115 3.4Vp-p 1V/20.0 μ sec. cm COLOR CHART	23-A IC1104-5 7.0Vp-p 2V/20.0 μ sec. cm COLOR CHART
			
3-A IC1102-31 1.6Vp-p 0.5V/20.0 μ sec. cm COLOR CHART	10-A IC1103-90 3.4Vp-p 1V/20.0 μ sec. cm COLOR CHART	17-A IC1103-116 3.4Vp-p 1V/20.0 μ sec. cm COLOR CHART	24-A IC1104-17 7.0Vp-p 2V/20.0 μ sec. cm COLOR CHART
			
4-A IC1103-10 3.5Vp-p 1V/20.0 μ sec. cm COLOR CHART	11-A IC1103-106 3.5Vp-p 1V/50.0nsec. cm COLOR CHART	18-A IC1103-117 3.4Vp-p 1V/20.0 μ sec. cm COLOR CHART	25-A IC1104-18 8.0Vp-p 2V/20.0 μ sec. cm COLOR CHART
			
5-A IC1103-16 3.4Vp-p 1V/5.0msec. cm COLOR CHART	12-A IC1103-107 3.5Vp-p 1V/50.0nsec. cm COLOR CHART	19-A IC1103-118 3.4Vp-p 1V/20.0 μ sec. cm COLOR CHART	26-A IC1106-27 3.4Vp-p 1V/5.0msec. cm COLOR CHART
			
6-A IC1103-19 3.4Vp-p 1V/20.0 μ sec. cm COLOR CHART	13-A IC1103-108 3.4Vp-p 1V/20.0 μ sec. cm COLOR CHART	20-A IC1103-119 3.4Vp-p 1V/5.0msec. cm COLOR CHART	
			
7-A IC1103-27 1.8Vp-p 0.5V/20.0nsec. cm COLOR CHART	14-A IC1103-110 6.0Vp-p 2V/100nsec. cm COLOR CHART	21-A IC1103-120 3.4Vp-p 1V/5.0msec. cm COLOR CHART	
			

SENSOR DRIVE [PC] SCHEMATIC DIAGRAM


IC104 μPD16510GR DRIVE PULSE GEN.
IC105 UPC358G2
IC106 HD6433042T19F DIGITAL μP
IC107 MX25L6407MR CAM. EEP-ROM
IC108 RVSV728AA RESET PULSE GEN.
IC109 HD74HCT125T LEVEL SHIFT
IC114 DC-7S08 (E2)
Q107 DTC144EE (26)
Q108 DTA143EE (L3)
D102 MA132WK (MB)
D103 MA132WK (MB)
D104 DF5A (S4)
D301 DA221 (O)
D302 DA221 (O)
D303 DA221 (O)
PG1101
PG1102
PG1103
CP102 LINE FILTER
F101 1A/125V
To DIGITAL PROCESS [P6-6] [P6-7]
To SENSOR (SP) PG1801 [P6-2]
To AUTO FOCUS [P6-8, 9]
To CAM. REG. (CSR) PG1501 [P6-10]
To DIGITAL PROCESS [P6-7]
ADJUSTMENT TERMINAL
[FOR K704/K704E]
NOTE: VOLTAGES ARE MEASURED WHEN THE CAMERA IS POINTED AT THE COLOR BAR CHART.
: ADD 1000 TO ALL CIRCUIT NUMBERS IN SENSOR DRIVE SECTION (FOR EXAMPLE READ R123 IS R1123 IN PARTS LIST.)
SENSOR DRIVE [PC]

SENSOR DRIVE 6-4 6-5 SENSOR DRIVE

DIGITAL PROCESS [PC] SCHEMATIC DIAGRAM

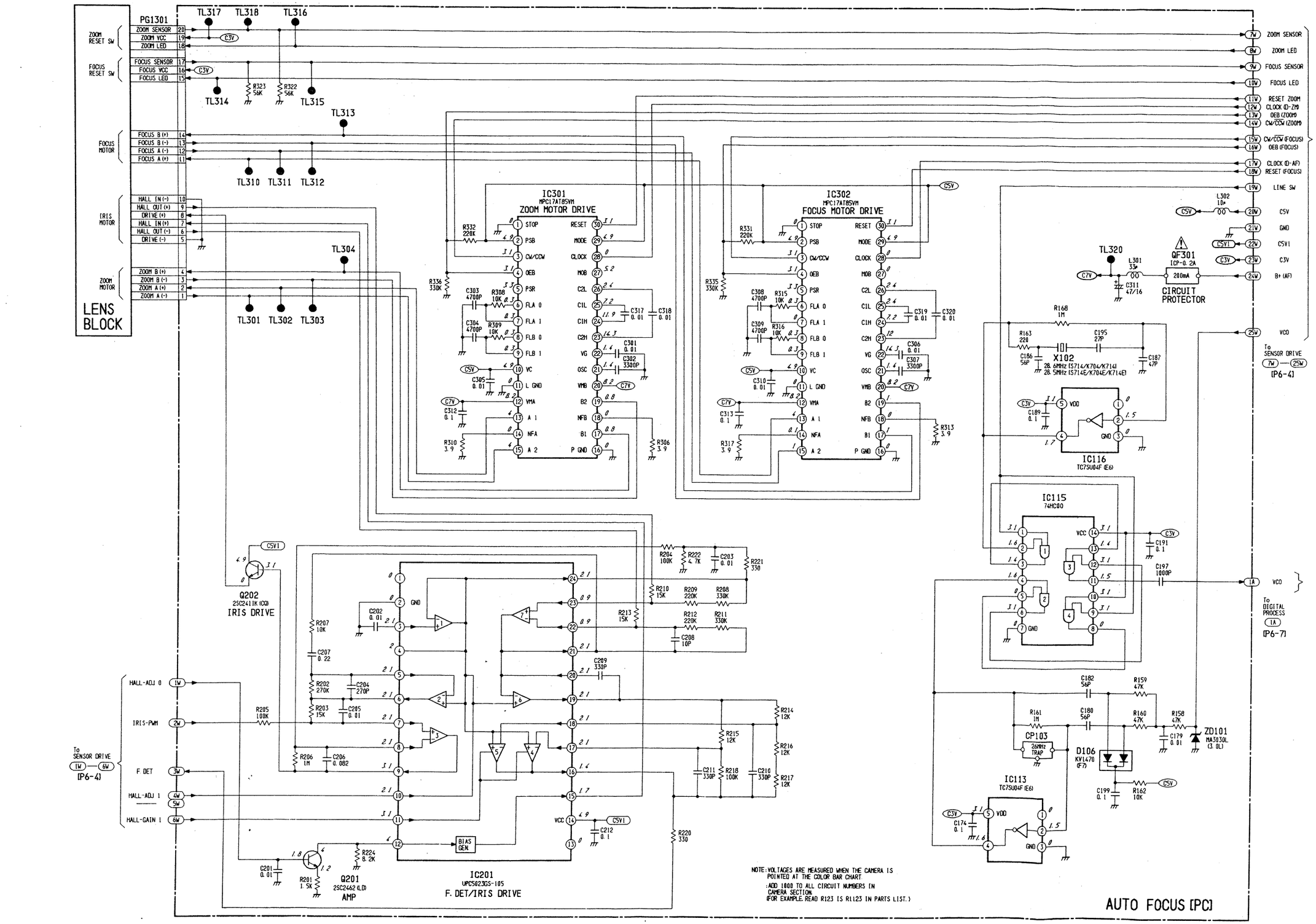


REF No \ TYPE	S714	S714E	K704	K704E	K714	K714E
CP101	7.2MHz	7.2MHz	5.2MHz	5.2MHz	7.2MHz	7.2MHz
C138	22P	12P				
C144	39P	27P				
R114	4.3K (1%)	4.3K (1%)	3.6K (1%)	4.3K (1%)	4.3K (1%)	4.3K (1%)
R115	68K (1%)	68K (1%)		39K (1%)	68K (1%)	68K (1%)
R116	1.2K	1.2K				
R117	2.2K (1%)	3.3K (1%)				
R118	2.7K (1%)	3.9K (1%)				

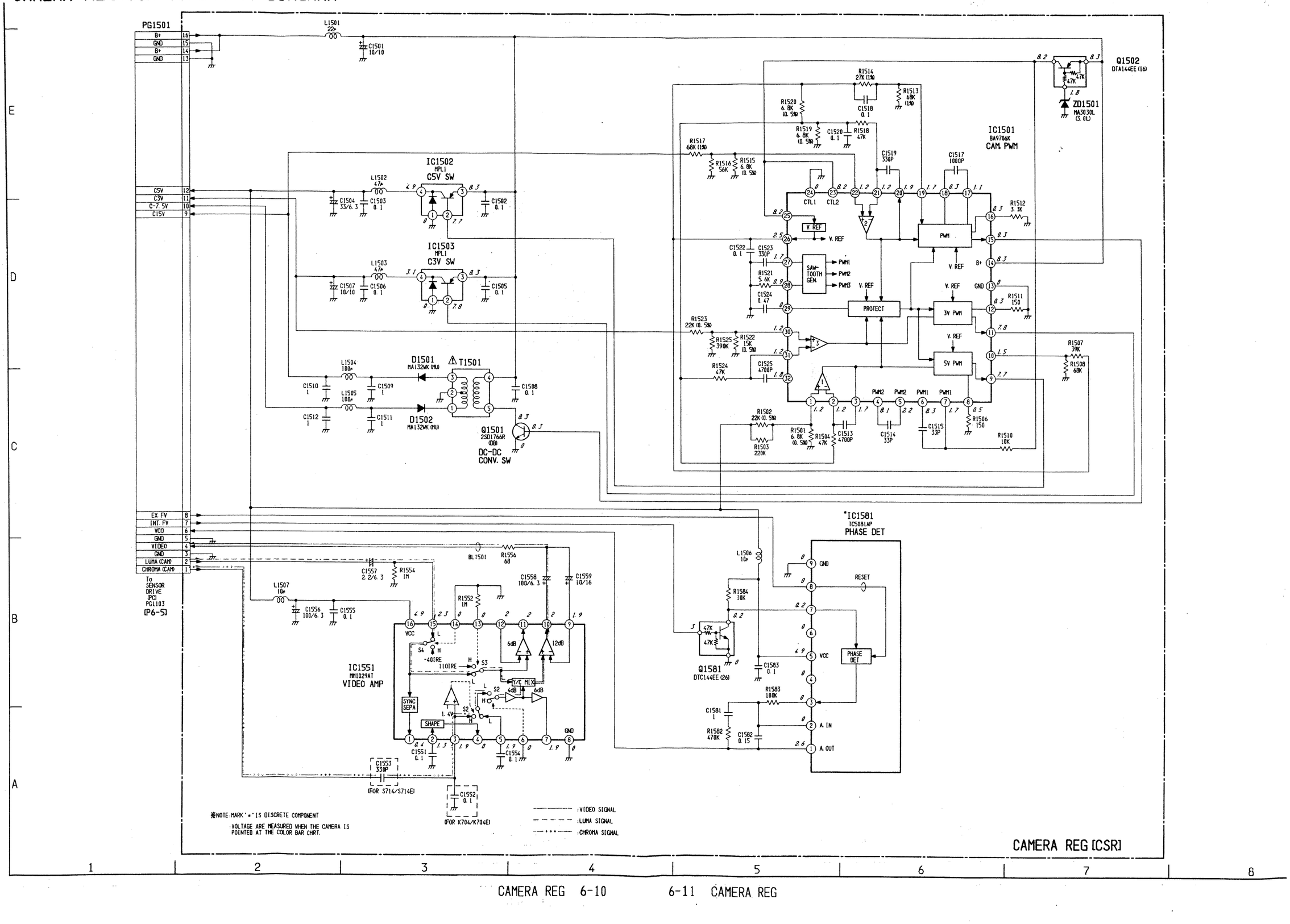
NOTE: VOLTAGES ARE MEASURED WHEN THE CAMERA IS POINTED AT THE COLOR BAR CHART.
ADD 1000 TO ALL CIRCUIT NUMBERS IN DIGITAL PROCESS SECTION (FOR EXAMPLE READ R123 AS R1123 IN PARTS LIST.)

WAVEFORMS No
: CCD SIGNAL
: LUMA SIGNAL
: CHROMA SIGNAL

AUTO FOCUS [PC] SCHEMATIC DIAGRAM



CAMERA REG [CSR] SCHEMATIC DIAGRAM



CAMERA REG [CSR]

CAMERA REG 6-10 6-11 CAMERA REG

IDENTIFICATION OF PARTS LOCATION

SP [SENSOR]

Symbol No.	Parts Location
C	
C1002	A-2B
C1003	A-1B
C1005	A-2B
C1006	A-2A
D	
D1001	A-2B
IC	
IC1001	A-2B
PG	
PG1001	B-2A
Q	
Q1001	A-2B
R	
R1001	A-2B
R1002	A-2B
R1003	A-2B
R1004	A-2A
R1005	A-2B

PC [PROCESS]

Symbol No.	Parts Location
BL	
BL1111	A-1B
C	
C1101	A-1B
C1102	B-1B
C1103	A-1B
C1104	B-2B
C1106	B-2B
C1107	A-1C
C1108	B-1B
C1109	A-2C
C1110	B-1C
C1111	B-2C
C1112	A-2C
C1113	B-2C
C1114	A-2C
C1115	A-2C
C1116	B-1C
C1117	B-1C
C1118	B-1C
C1119	B-1C
C1120	B-1C
C1121	A-1C
C1122	A-2C
C1124	B-2C
C1125	B-2C
C1126	B-1C
C1127	A-2C
C1128	A-2C
C1129	A-3C
C1130	A-2B
C1131	A-2B
C1133	A-3C
C1134	B-3C
C1135	B-3C
C1136	B-3C
C1137	B-3C
C1138	A-3C
C1139	A-3C
C1140	B-1C
C1141	A-1C
C1142	B-1C
C1143	A-1C
C1144	A-3C
C1147	B-3B
C1148	A-2B
C1149	A-2C
C1150	A-2C
C1151	A-3C
C1152	A-3B
C1153	A-2C
C1154	B-5C
C1155	B-2A
C1156	A-4C
C1158	B-4B
C1159	B-4C
C1160	B-5C
C1162	B-5C
C1163	B-4C
C1166	A-4C
C1167	B-4C
C1169	A-1A
C1173	B-5B
C1174	B-3B
C1175	A-4C
C1176	A-4B
C1177	A-4B
C1178	A-4C
C1179	B-3B
C1180	B-3B
C1182	B-3B
C1186	A-5B
C1187	A-5B
C1189	B-4B
C1191	B-3B
C1193	A-2A
C1194	A-5C
C1195	A-4B
C1196	A-4B
C1197	B-3B
C1198	A-2A
C1199	B-3A
C1201	B-4A
C1202	A-3A
C1203	A-3A
C1204	A-3A
C1205	A-4A
C1206	A-4B
C1207	A-3A
C1208	A-3A
C1209	A-4A
C1210	A-4A
C1211	B-4A
C1212	A-4A
C1301	A-5A
C1302	A-4A
C1303	A-5A
C1304	A-4A
C1305	A-4A
C1306	B-4A
C1307	B-5A
C1308	B-4A
C1309	B-4A
C1310	B-5A
C1311	A-2A
C1312	A-4A
C1313	B-5A
C1317	A-5A
C1318	A-5B
C1319	B-4A
C1320	B-4B
CP	
CP1101	A-3C
CP1102	A-1A
CP1103	A-3B
D	
D1101	B-1C
D1102	A-2C
D1103	B-5B
D1104	B-1A
D1105	A-2D
D1106	B-3B
D1301	B-4C
D1302	B-5C
D1303	B-5C
F	
F1101	B-1A
IC	
IC1101	B-2B
IC1102	B-2C
IC1103	B-3C
IC1104	A-3C
IC1105	B-2A
IC1106	B-4C
IC1107	A-5C
IC1108	B-5C
IC1109	A-4C
IC1112	A-4C
IC1113	B-3B
IC1114	A-2A
IC1115	A-3B
IC1116	B-4B
IC1201	A-4A
IC1301	A-4A
IC1302	B-4A
L	
L1101	B-1C
L1102	B-1C
L1106	A-3C
L1109	B-1B
L1110	B-1C
L1301	A-2A
L1302	B-5B
PG	
PG1101	A-2B
PG1102	B-1A
PG1103	A-1B
PG1301	B-3A
Q	
Q1101	A-1B
Q1102	B-1C
Q1103	A-3C
Q1104	A-3C
Q1105	A-3C
Q1106	A-2C
Q1107	A-2A
Q1108	A-1B
Q1201	B-4A
Q1202	B-4A
QF	
QF1301	A-1A
R	
R1102	B-1C
R1103	B-2C
R1105	A-1C
R1106	A-2C
R1107	B-2C
R1108	B-2C
R1109	B-2C
R1110	B-2C
R1113	A-2B
R1114	B-3C
R1115	B-3C
R1116	A-3C
R1117	A-3C
R1118	A-3C
R1119	A-3C
R1120	A-3C
R1121	A-3C
R1122	A-3C
R1123	A-3C
R1124	A-3C
R1125	A-3C
R1126	A-3C
R1127	B-1C
R1128	B-1C
R1129	B-1C
R1132	A-2C
R1133	A-2C
R1136	B-2A
R1137	B-2A
R1138	B-2A
R1139	A-4C
R1140	A-4C
R1141	A-4C
R1142	A-4C
R1143	A-4C
R1145	A-5C
R1146	B-4C
R1149	B-4C
R1153	B-5C
R1154	B-5C
R1155	B-5C
R1156	B-5C
R1157	B-5C
R1158	B-3B
R1159	B-3B
R1160	B-3B
R1161	B-3B
R1162	B-2A
R1163	A-5B
R1168	A-4B
R1169	A-4B
R1170	A-4B
R1171	A-4B
R1176	A-2A
R1178	A-2A
R1181	B-5C
R1182	B-5B
R1183	B-4B
R1185	A-3C
R1187	A-3C
R1191	A-3C
R1192	A-3C
R1201	B-4A
R1202	A-3A
R1203	A-4A
R1204	A-4B
R1205	A-4A
R1206	A-4A
R1207	A-3A
R1208	A-3A
R1209	A-3A
R1210	A-3A
R1211	A-3A
R1212	A-3A
R1213	A-3A
R1214	A-4A
R1215	A-4A
R1216	A-4A
R1217	A-4A
R1218	B-4A
R1220	B-4A
R1221	A-3A
R1222	A-3A
R1224	A-4A
R1301	B-4C
R1302	B-4C
R1303	B-4C
R1304	B-4C
R1306	A-4A
R1308	A-5A
R1309	A-4A
R1310	B-4A
R1313	B-5A
R1315	B-4A
R1316	B-4A
R1317	B-5A
R1322	B-4B
R1323	B-4B
R1329	A-5C
R1330	B-4C
R1331	B-4A
R1332	A-5A
R1335	B-4A
R1336	A-5A
TL	
TL1301	A-3A
TL1302	A-3A
TL1303	A-2A
TL1304	A-3A
TL1310	A-2A
TL1311	A-2A
TL1312	A-2A
TL1313	A-3A
TL1314	A-3A
TL1315	A-3A
TL1316	A-3B
TL1317	A-2A
TL1318	A-3A
TL1320	A-2A
X	
X1101	A-5C
X1102	A-5B
ZD	
ZD1101	B-2B

IDENTIFICATION OF PARTS LOCATION

CSR [CAM. REG.]

Symbol No.	Parts Location
BL	
BL1501	A-1A
C	
C1501	A-2B
C1502	A-3C
C1503	A-3A
C1504	A-3A
C1505	A-3C
C1506	A-3A
C1507	A-2A
C1508	B-2C
C1509	B-2A
C1510	A-2A
C1511	B-2A
C1512	A-2A
C1513	B-3B
C1514	B-3B
C1515	B-3B
C1517	B-3B
C1518	B-2A
C1519	B-2B
C1520	B-2A
C1522	B-3A
C1523	B-3A
C1524	B-3A
C1525	B-3A
C1551	B-1B
C1552	B-1B
C1553	B-1B
C1554	B-1B
C1555	A-1A
C1556	A-1B
C1557	A-1A
C1558	A-1B
C1559	A-1A
C1581	B-1A
C1582	B-1A
C1583	B-1B
D	
D1501	B-2B
D1502	B-2B
IC	
IC1501	B-3B
IC1502	A-3B
IC1503	A-3B
IC1551	B-1B
IC1581	B-2B
L	
L1501	A-2B
L1502	A-3B
L1503	A-3B
L1504	B-2A
L1505	B-2A
L1506	B-1A
L1507	B-1A
PG	
PG1501	A-2A

Symbol No.	Parts Location
Q	
Q1501	B-2B
Q1502	B-3B
Q1581	B-1B
R	
R1501	B-3B
R1502	B-3A
R1503	B-3A
R1504	B-3B
R1506	B-3B
R1507	B-3B
R1508	B-3B
R1510	B-3B
R1511	B-3B
R1512	B-3B
R1513	B-2B
R1514	B-3A
R1515	B-2B
R1516	B-2B
R1517	B-2A
R1518	B-3B
R1519	B-2A
R1520	B-3A
R1521	B-3A
R1522	B-3A
R1523	B-3A
R1524	B-3A
R1525	B-3A
R1552	B-1B
R1554	B-1B
R1556	A-1A
R1582	B-1A
R1583	B-1B
R1584	B-1B
T	
T1501	A-2B
ZD	
ZD1501	B-2B

PC [PROCESS] – SIDE A – DIFFERENCE TABLE

NOTE: This table listes the different components marked with asterisks (*) in the circuit board diagrams.

SYMBOL No.	S714	S714E	K704	K704E	K714	K714E
C1138	○	○	×	×	×	×
C1144	○	○	×	×	×	×
C1175	○	○	×	×	×	×
C1176	○	○	×	×	×	×
C1177	○	○	×	×	×	×
C1178	○	○	×	×	×	×
C1196	○	○	×	×	×	×
IC1112	○	○	×	×	×	×
L1106	○	○	×	×	×	×
Q1104	○	○	×	×	×	×
R1116	○	○	×	×	×	×
R1117	○	○	×	×	×	×
R1118	○	○	×	×	×	×
R1119	○	○	×	×	×	×
R1122	○	×	○	×	○	×
R1169	JUMPER	JUMPER	×	×	×	×
R1170	○	○	×	×	×	×
R1171	○	○	×	×	×	×
X1101	○	○	×	×	×	×

PC [PROCESS] – SIDE B – DIFFERENCE TABLE

NOTE: This table listes the different components marked with asterisks (*) in the circuit board diagrams.

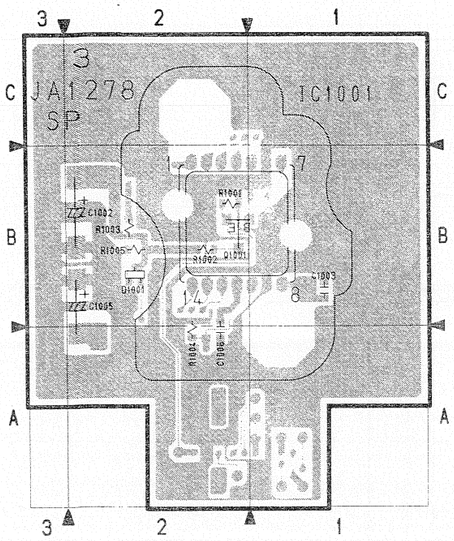
SYMBOL No.	S714	S714E	K704	K704E	K714	K714E
C1140	○	○	×	×	○	○
C1142	×	×	○	○	×	×
C1155	×	×	○	○	×	×
IC1105	×	×	○	○	×	×
Q1102	○	○	×	×	○	○
R1115	○	○	×	○	○	○
R1127	×	×	JUMPER	JUMPER	×	×
R1128	○	○	×	×	○	○
R1129	○	○	×	×	○	○
R1136	×	×	○	○	×	×
R1137	×	×	○	○	×	×
R1138	×	×	○	○	×	×
R1154	×	×	JUMPER	JUMPER	×	×
R1155	JUMPER	JUMPER	×	×	JUMPER	JUMPER
R1156	JUMPER	×	JUMPER	×	JUMPER	×
R1157	×	JUMPER	×	JUMPER	×	JUMPER

CSR [CAM, REG] – SIDE B – DIFFERENCE TABLE

NOTE: This table listes the different components marked with asterisks (*) in the circuit board diagrams.

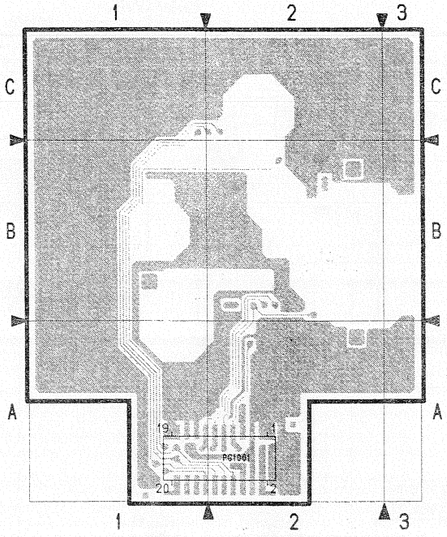
SYMBOL No.	S714	S714E	K704	K704E	K714	K714E
C1552	×	×	○	○	○	○
C1553	○	○	×	×	×	×

SP. PC. CSR CIRCUIT BOARDS

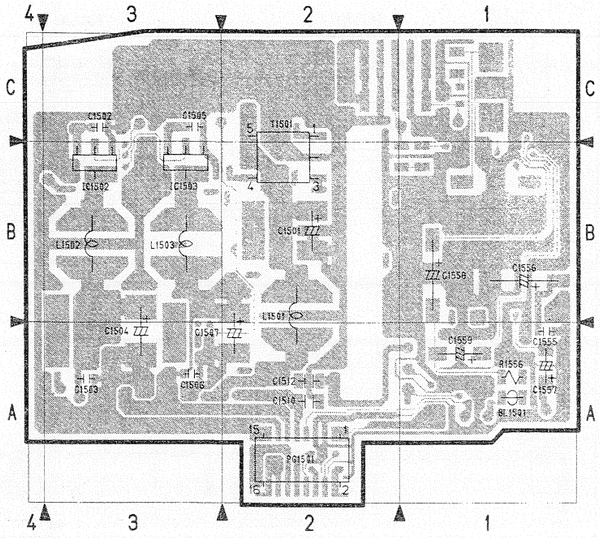


SP(SENSOR)-SIDE A-

[PATTERN No.JA1278-3]

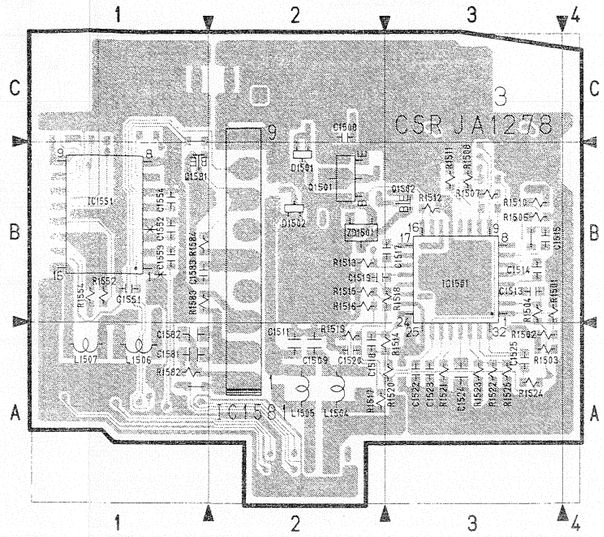


SP(SENSOR)-SIDE B-

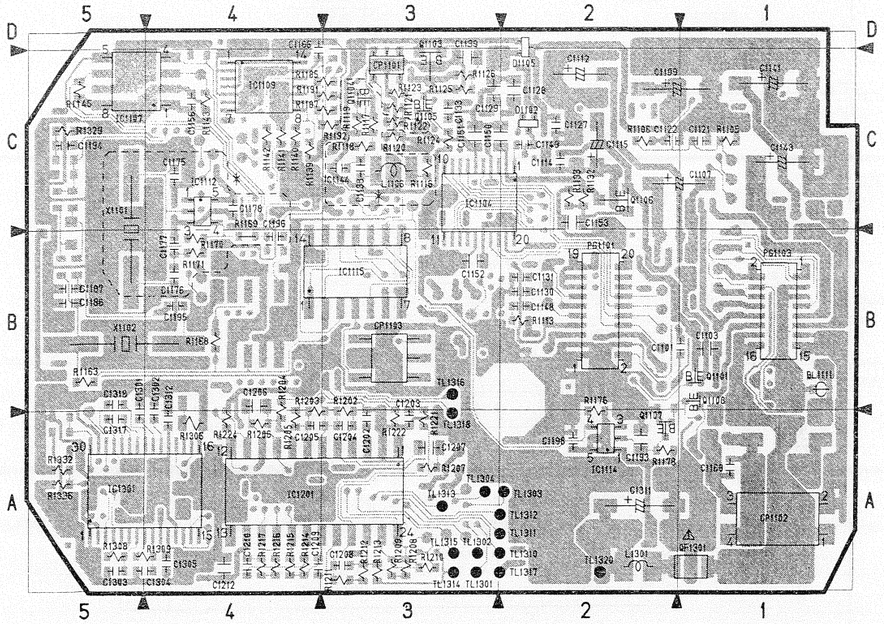


CSR(CAM.REG.)-SIDE A-

[PATTERN No.JA1278-3]

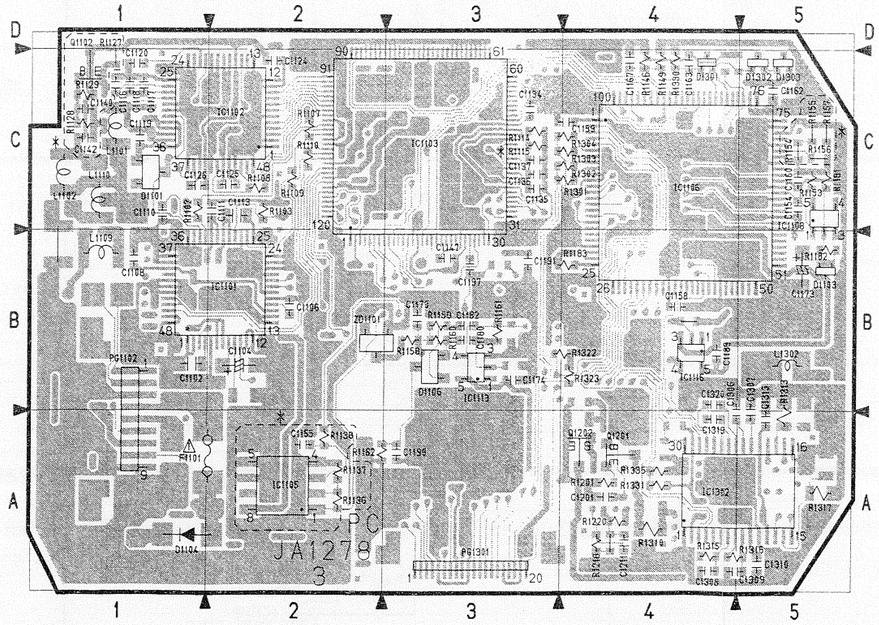


CSR(CAM.REG.)-SIDE B-



PC(PROCESS)-SIDE A-

[PATTERN No.JA1278-3]

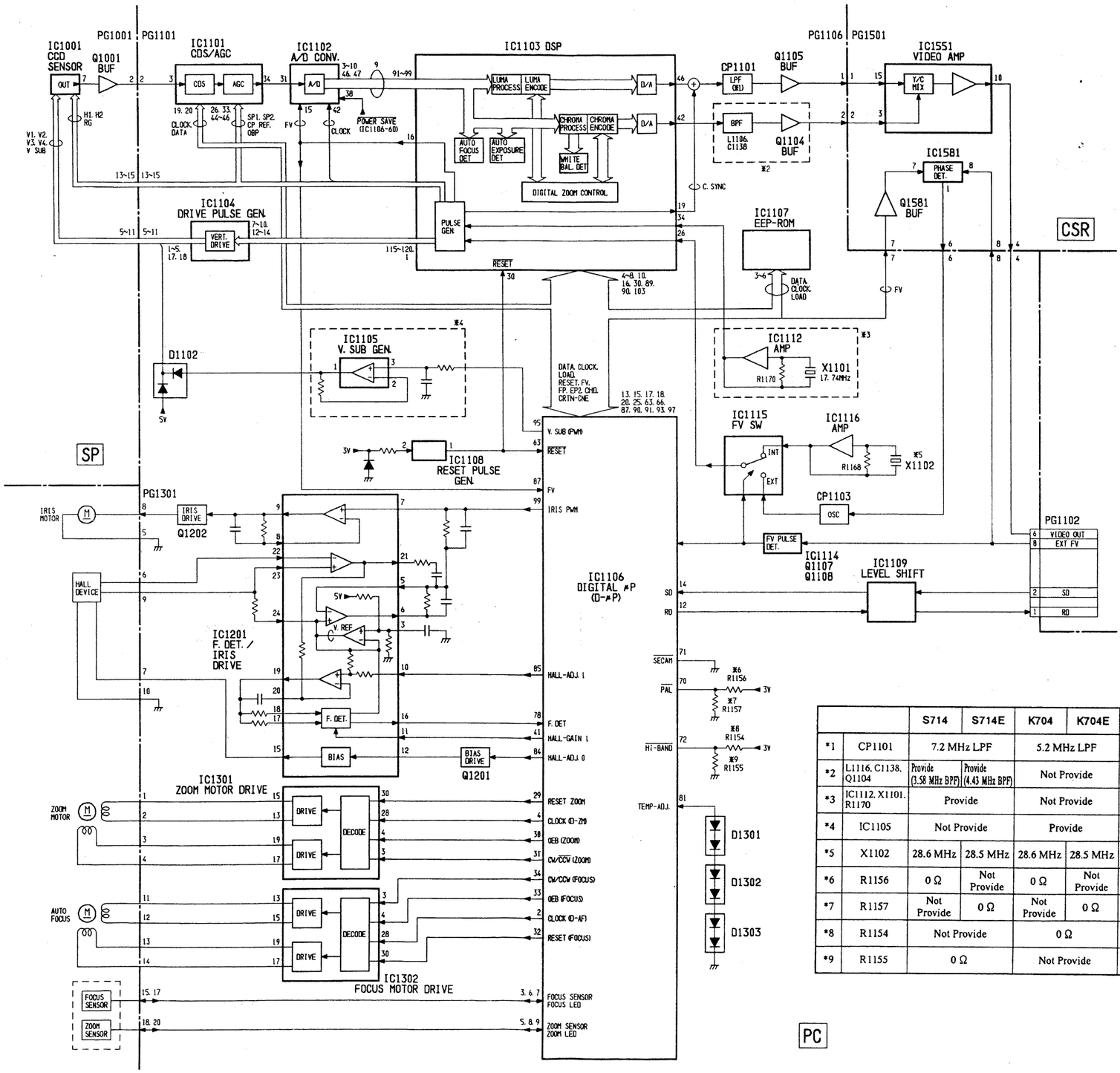


PC(PROCESS)-SIDE B-

CHAPTER 7 BLOCK DIAGRAM/APPENDIX

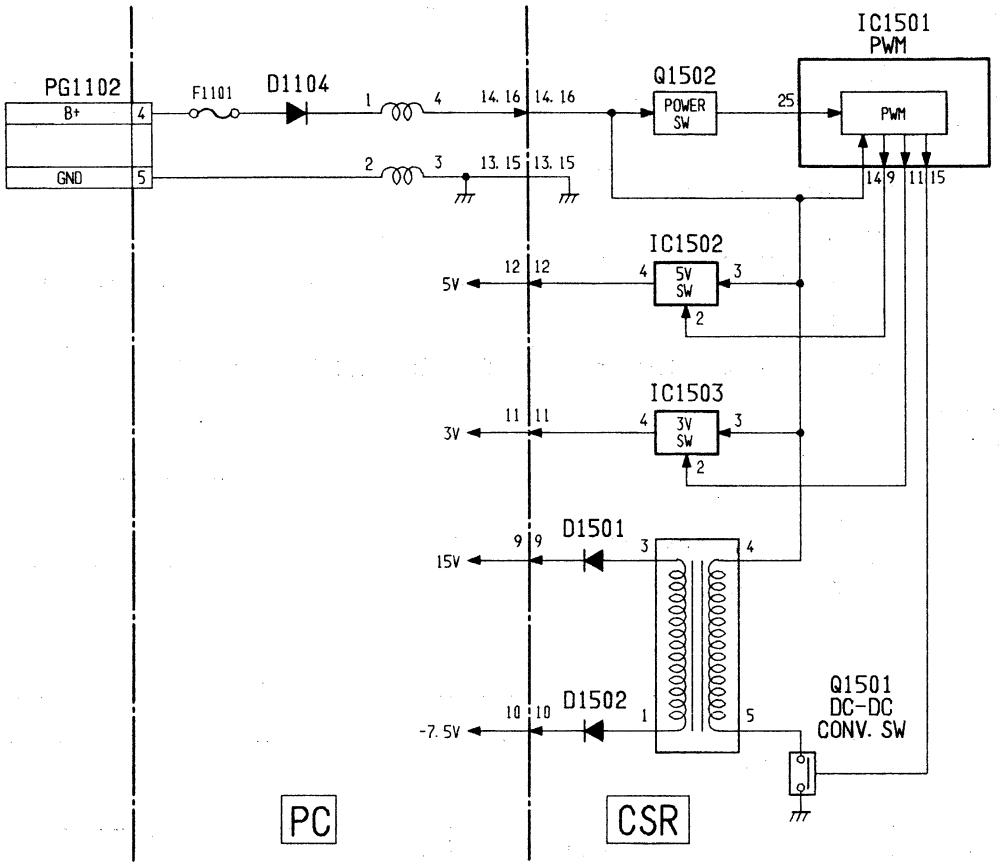
1. BLOCK DIAGRAMS

1-1. CAMERA



		S714	S714E	K704	K704E	K714	K714E
*1	CP1101	7.2 MHz LPF		5.2 MHz LPF		7.2 MHz LPF	
*2	L1116, C1138, Q1104	Provide (3.58 MHz BPF)	Provide (4.43 MHz BPF)	Not Provide		Not Provide	
*3	IC1112, X1101, R1170	Provide		Not Provide		Not Provide	
*4	IC1105	Not Provide		Provide		Not Provide	
*5	X1102	28.6 MHz	28.5 MHz	28.6 MHz	28.5 MHz	28.6 MHz	28.5 MHz
*6	R1156	0 Ω	Not Provide	0 Ω	Not Provide	0 Ω	Not Provide
*7	R1157	Not Provide	0 Ω	Not Provide	0 Ω	Not Provide	0 Ω
*8	R1154	Not Provide		0 Ω		Not Provide	
*9	R1155	0 Ω		Not Provide		0 Ω	

1-2. POWER


PG1102
B+
GND
F1101
D1104
IC1501
PWM
Q1502
POWER SW
PWM
IC1502
5V SW
IC1503
3V SW
D1501
D1502
Q1501
DC-DC CONV. SW
5V
3V
15V
-7.5V
PC
CSR

2. MICROPROCESSOR PIN FUNCTION TABLES

2-1. Digital Microprocessor (IC1106: D-μP)

Pin No.	I/O	Active Level	Function
1	—	——	3V power input.
2	O	(PULSE)	Outputs reference clock pulses to IC1302 (FOCUS MOTOR DRIVE).
3	I	(PULSE)	Focus motor position detection input.
4	O	(PULSE)	Outputs reference clock pulses to IC1301 (ZOOM MOTOR DRIVE).
5	I	(PULSE)	Zoom motor position detection input.
6	O	(PULSE)	These output pulses which drive the LEDs in the focus reset switches (FOCUS RESET SW).
7	O	(PULSE)	
8	O	(PULSE)	These output pulses which drive the LEDs in the zoom reset switches (ZOOM RESET SW).
9	O	(PULSE)	
10	—	——	Not used. Grounded.
11	—	——	Grounded.
12	O	(PULSE)	Used for initial setting and adjustment. For data communications with a personal computer.
14	I	(PULSE)	
13	O	(PULSE)	For data communications with IC1103 (DSP), IC1107 (EEP-ROM).
15	I	(PULSE)	
17	O	(PULSE)	
16	—	——	Not used. Open.
18	O	Lo	Activates data communications with IC1107 (EEP-ROM).
19	—	——	Not used. Open.
20	—	——	
21	—	——	
22	—	——	Grounded.
23	—	——	Not used. Open.
24	—	——	
25	O	(PULSE)	Activates data communications with IC1103 (DSP).
26	—	——	Not used. Open.
27	O	(PULSE)	These transfer data to IC1101 (CDS/AGC).
28	O	(PULSE)	
29	O	Hi	Resets IC1301 (ZOOM MOTOR DRIVE).
30	O	(PULSE)	Activates the output from IC1301 (ZOOM MOTOR DRIVE).
31	O	Hi/Lo	Outputs a signal that determines the direction of motor drive to IC1301 (ZOOM MOTOR DRIVE).
32	O	Hi	Resets IC1302 (FOCUS MOTOR DRIVE).
33	O	(PULSE)	Activates the output from IC1302 (FOCUS MOTOR DRIVE).

Pin No.	I/O	Active Level	Function
34	O	Hi/Lo	Outputs a signal that determines the direction of motor drive to IC1302 (FOCUS MOTOR DRIVE).
35	I	——	3V power input.
36	—	——	Not used. Open.
37	—	——	
38	—	——	
39	—	——	
40	—	——	
41	O	Hi	Drives IC1201 (F.DET/IRIS DRIVE) to control the amplification (gain of Hall device).
42	—	——	Not used. Open.
43	—	——	
44	—	——	Grounded.
45	—	——	Not used. Open.
46	—	——	
47	—	——	
48	—	——	
49	—	——	
50	—	——	
51	—	——	
52	—	——	
53	—	——	
54	—	——	
55	—	——	
56	—	——	
57	—	——	Grounded.
58	I	Lo	Line lock mode input. (INT:Hi, L.L:Lo)
59	I	Lo	Grounded.
60	O	Lo	Outputs "Lo" in modes other than camera recording to stop IC1102 (A/D CONV.), thus reducing power consumption.
61	—	——	Not used. Open.
62	I	Hi	Not used. Connected to 3V power supply.
63	I	Lo	A reset signal is input from IC1108 (RESET PULSE GEN.).
64	I	Hi	Not used. Connected to the 3V power supply.
65	—	——	Grounded.
66	I	(PULSE)	Receives clock pulses used in IC1106 from IC1103 (DSP).
67	—	——	Not used. Open.

Pin No.	I/O	Active Level	Function
68	—	——	3V power supply input.
69	—	——	Not used. Open.
70	I	Lo	Internal mode selection input. (NTSC model: Hi, PAL model: Lo)
71	I	Lo	Internal mode selection input. Grounded.
72	I	Lo	Internal mode selection input. (Color model: Lo, B&W model: Hi)
73	—	——	Not used. Grounded.
74	—	——	Not used. Connected to 3V power supply.
75	—	——	
76	—	——	5V power supply input (used by analog circuits in IC1106).
77	—	——	A/D reference voltage input (connected to 5V power supply).
78	I	0V-5V	F-value detection input. Receives the F.DET voltage detected by IC1201 (F.DET/IRIS DRIVE) and compares this with the reference voltage input via pin 77 to detect the F-value.
79	—	——	Not used. Open.
80	—	——	
81	I	0V-5V	Temperature change detection input. Detects variations in the forward voltage at the connected diode to correct backfocus.
82	—	——	Not used. Open.
83	I	0V-5V	Camera switch detection input.
84	0	0V-5V	Drives Q1201 (HALL BIAS) to control the bias voltage of the Hall device.
85	0	0V-5V	Controls the offset voltage of IC1201 (F.DET/IRIS DRIVE).
86	—	——	Grounded.
87	I	(PULSE)	Receives vertical sync pulses which detect the iris detection area from IC1103 (DSP).
88	—	——	Not used. Open.
89	—	——	
90	I	(PULSE)	Field detection pulse input
91	I	(PULSE)	Pulse input to determine the iris detection area.
92	—	——	Grounded.
93	I	(PULSE)	Horizontal sync signal input.
94	—	——	Not used. Open.
95	0	(PULSE)	CCD SUB voltgae control piulse output. (B&W model only)
96	—	——	Not used. Open.
97	0	(PULSE)	Supplies pulses to IC1103 (DSP) to control the wipe fade operation.
98	—	——	Not used. Open.
99	0	(PULSE)	Iris motor drive output.
100	—	——	Not used. Open.